MAY 4, 1959

PAPER TRADE JOURNAL

New Wood Feeding System at Swedish Groundwood Mill

How to Determine Whether Production Meets Specifications

Growth and Development of the Paper Industry

Scottish Mill Installs New Twin Wire Paper Machine

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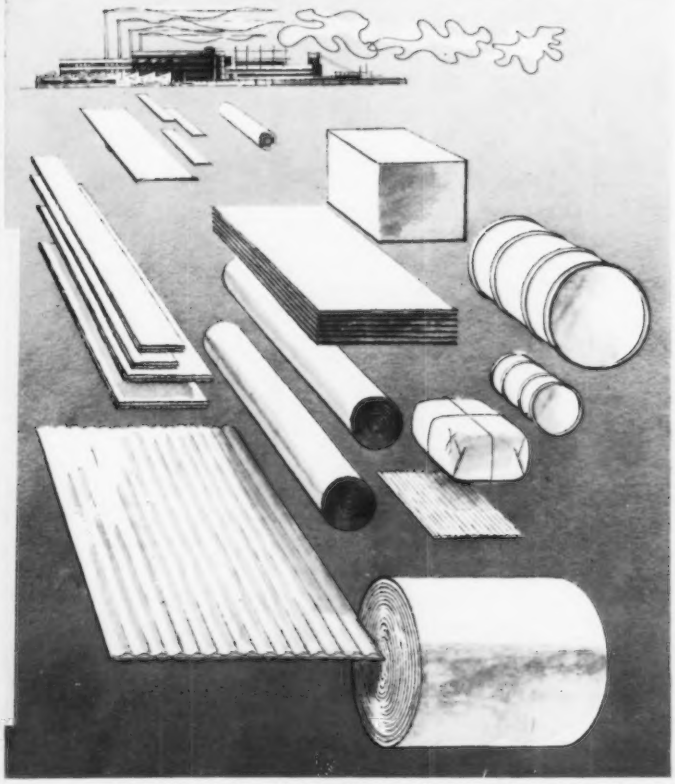

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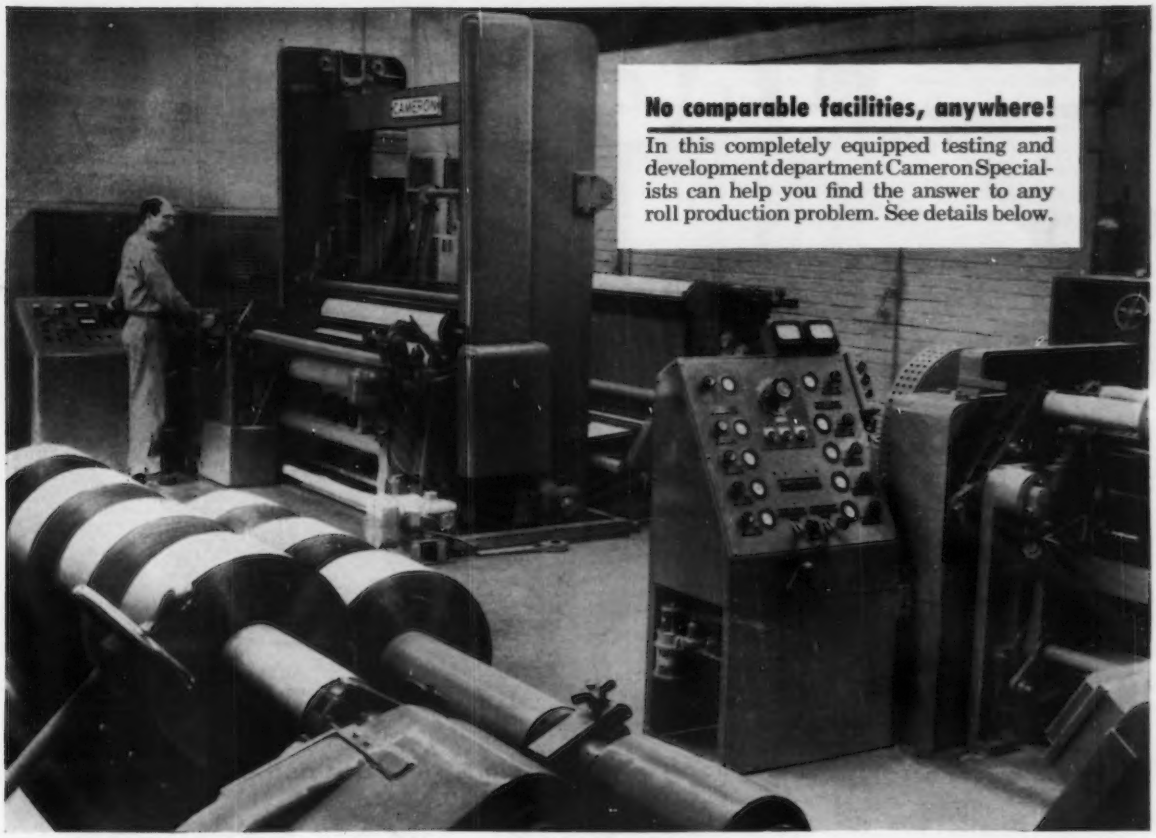

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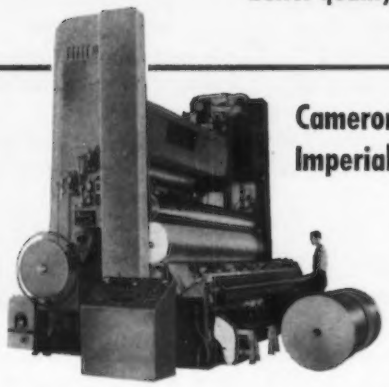

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PAPER TRADE JOURNAL

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TRENDS 19

NEWS OF THE WEEK 21

FEATURE ARTICLES

New Twin Wire Paper Machine at Scottish Mill 28

Some Intervening Years of a Still-Growing Giant 31

To Reject or Not to Reject 42

Swedish Groundwood Mill Uses New Wood Feeding System 44

Effect of Machine Drives, Furnish Characteristics and Cleaning Methods Discussed at Huyck Seminar .. 46

PAPER PEOPLE 24
NEWS OF CONVERTERS 27
NEW LITERATURE ... 34
PRICES OF FIBERS 47
NEW EQUIPMENT AND SUPPLIES 48
OBITUARIES 54
NEWS OF SUPPLIERS .. 55
FIGURES OF THE WEEK 57
CLASSIFIED ADVERTISING 60
ADVERTISERS INDEX .. 64

REMEMBER THESE DATES

May 25-27, Tenth Coating Conference, Statler Hotel, Boston, Mass.

June 2-4, American Pulp and Paper Mill Superintendent's Ass'n., National Meeting at the Shamrock Hilton Hotel, Houston, Texas.

June 17-20, Summer Meeting, Technical Section, C.P.P.A., Manoir Richelieu, Murray Bay, Que., Canada.

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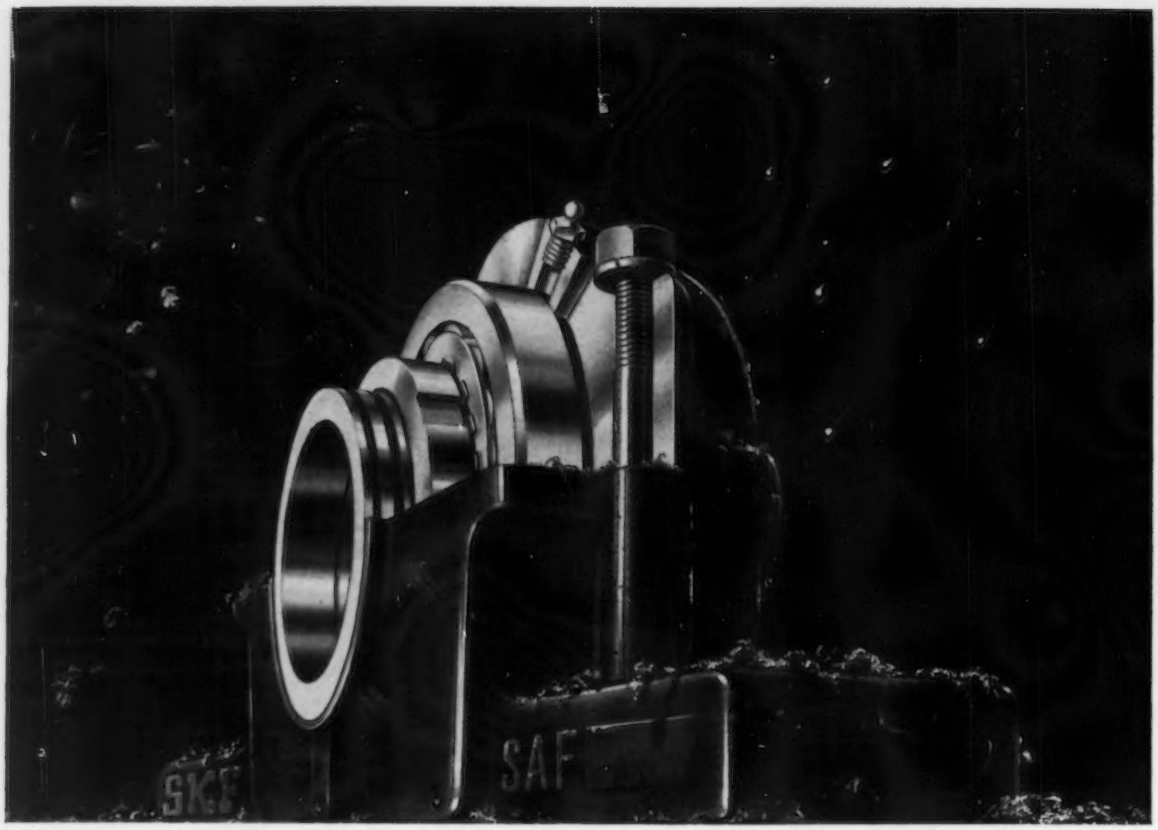

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The bearings in all SKF split pillow blocks are protected by triple seal rotating rings. The seals are triple lipped and are one integral unit. They are mounted with a slip fit on the shaft which permits unrestricted axial motion. Being of the labyrinth type, there is no friction between the rotating and stationary components; consequently, there is no wear and no replacement problem.

SKF Triple Seal Type SAF pillow blocks, with ball or roller bearings, give long trouble-free service. If your design involves abnormal operating conditions, cast steel housings (designated SAFS and SDAFS) are available. These heavy-duty pillow blocks are recommended for use in oil field machinery, steel and rubber mills, crushers, etc.

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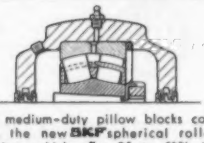
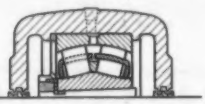


SAF medium-duty pillow blocks contain the new SKF spherical roller bearings which offer 25 to 50% increased capacity, 2 to 3½ times longer life.



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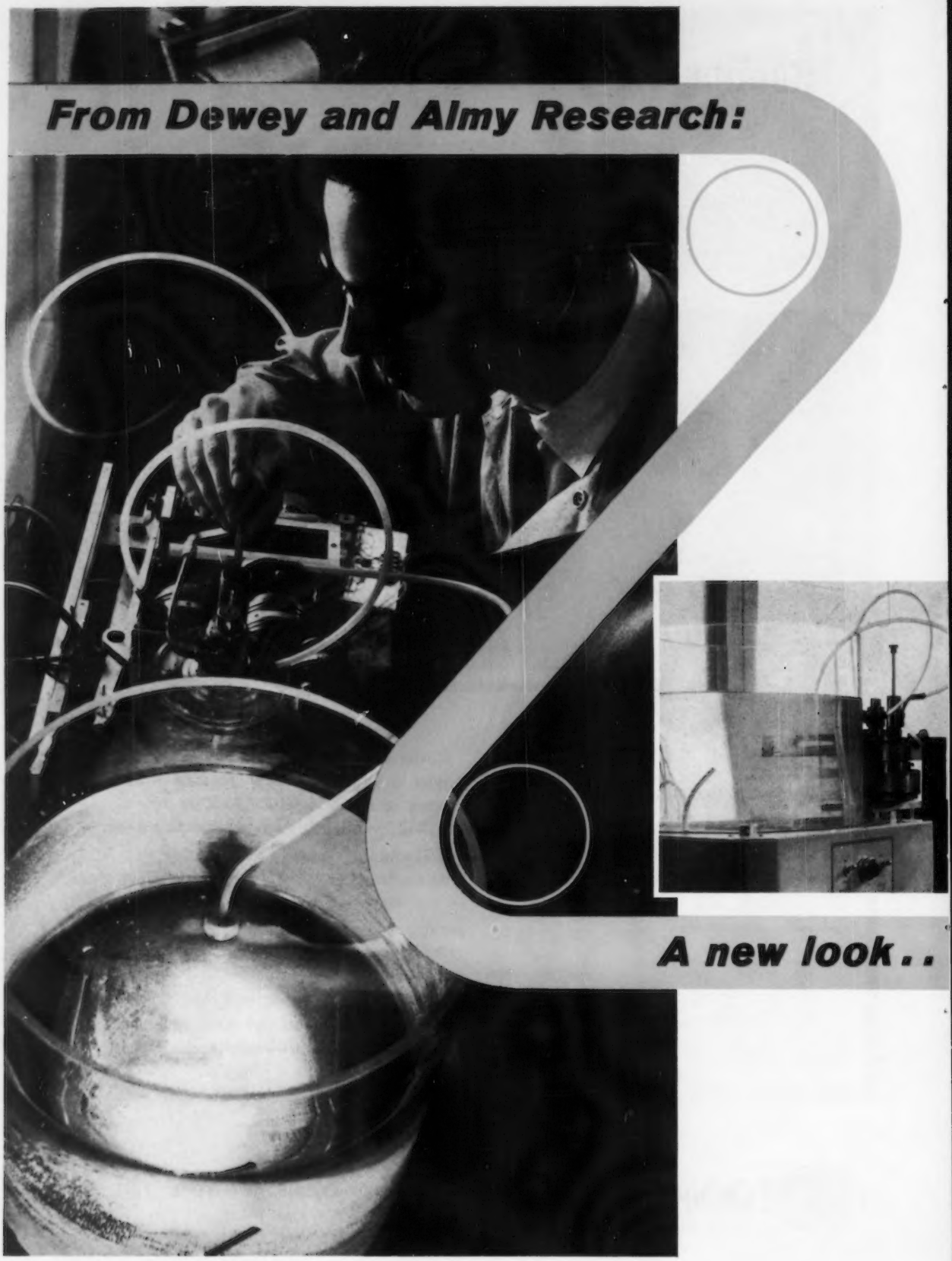
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A new look . .

This unusual instrument, developed for and with Dewey and Almy by Dr. Edward W. Merrill, enables our chemists to study the effects of rates of shear up to 26,000 reciprocal seconds on paper-coating colors. Accurate predictions can be made of the ultimate performance of paper coatings and binding agents, while still in the developmental state. *Result: finer papers.* (A commercial model of the viscometer is being developed by Brookfield Engineering Laboratories of Stoughton, Massachusetts.)

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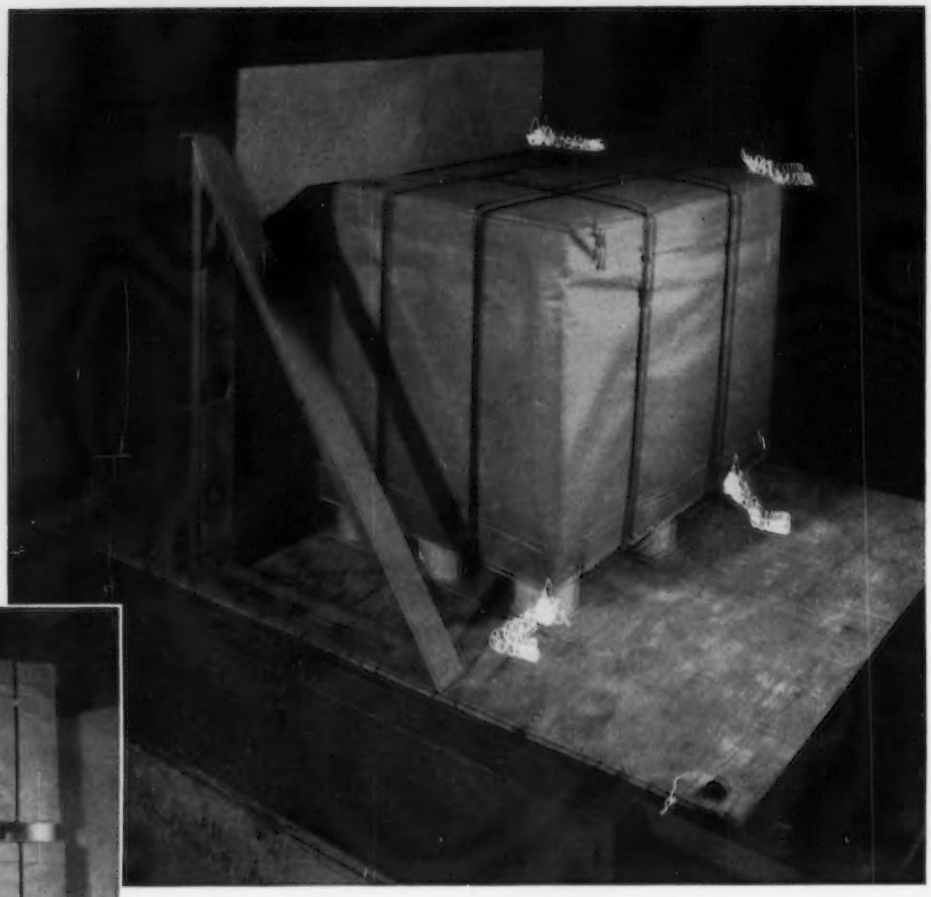
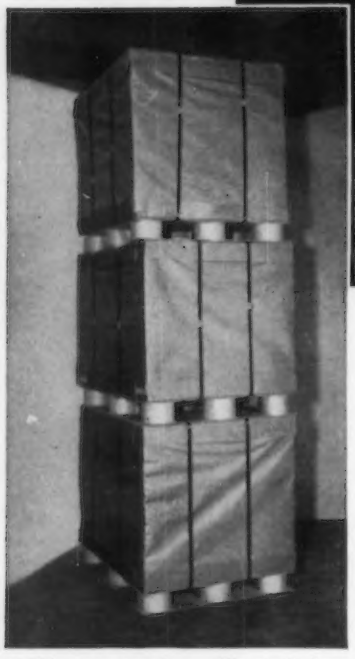


Vibration test of 3000 pound load of paper in Signode Packaging Laboratory. Vibrator handles up to 3 tons at accelerations over one G.



Solid, strong packs readily stack three high without loosening straps on bottom pack.

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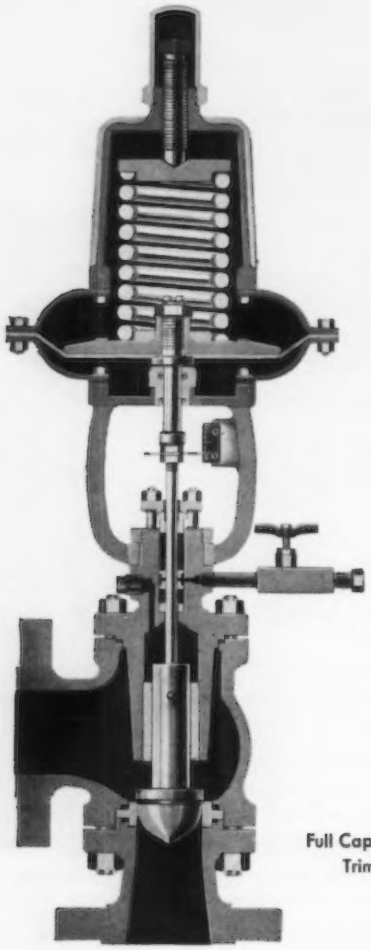

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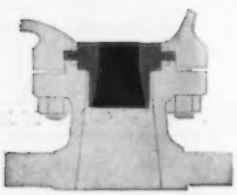

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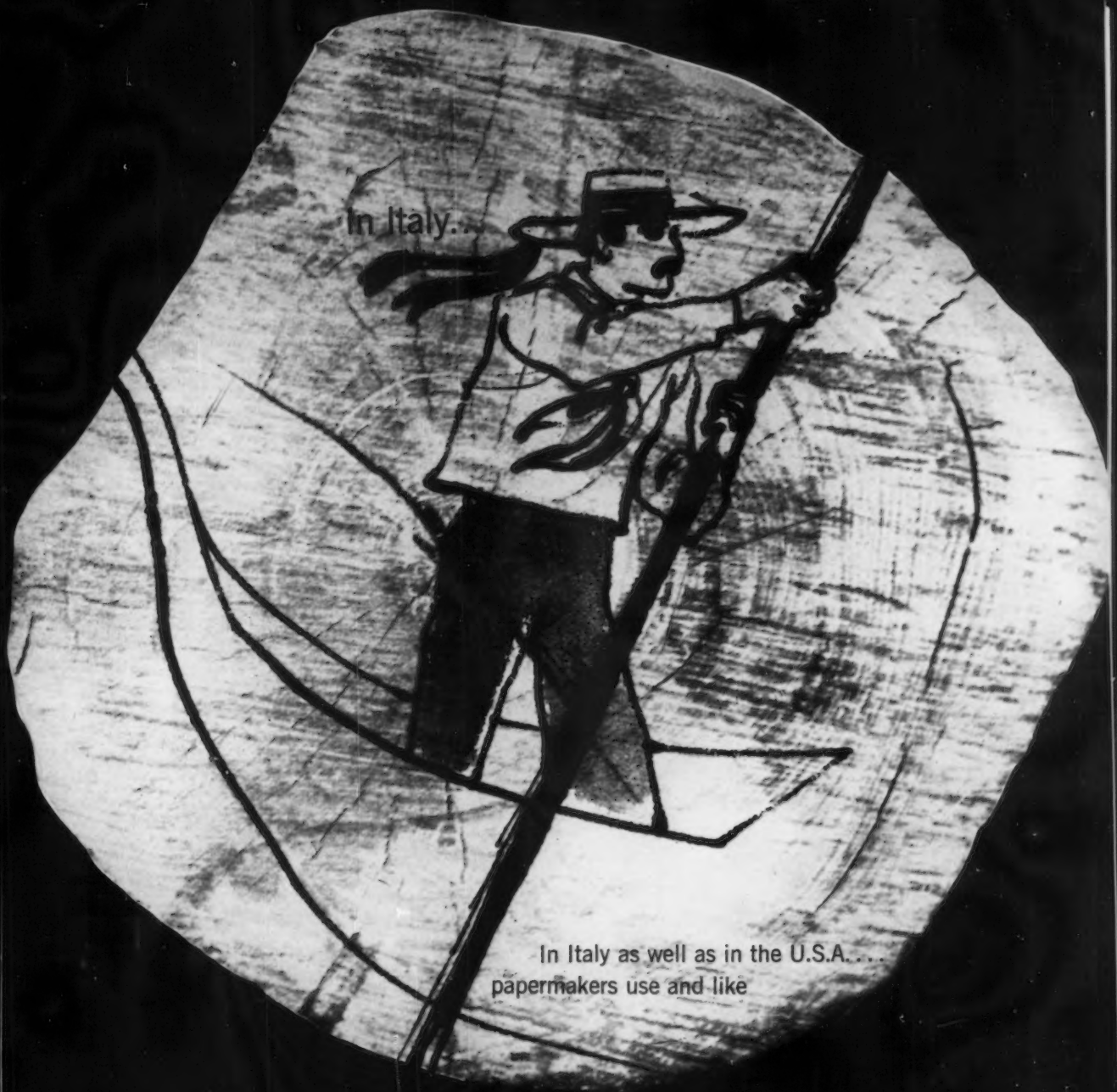

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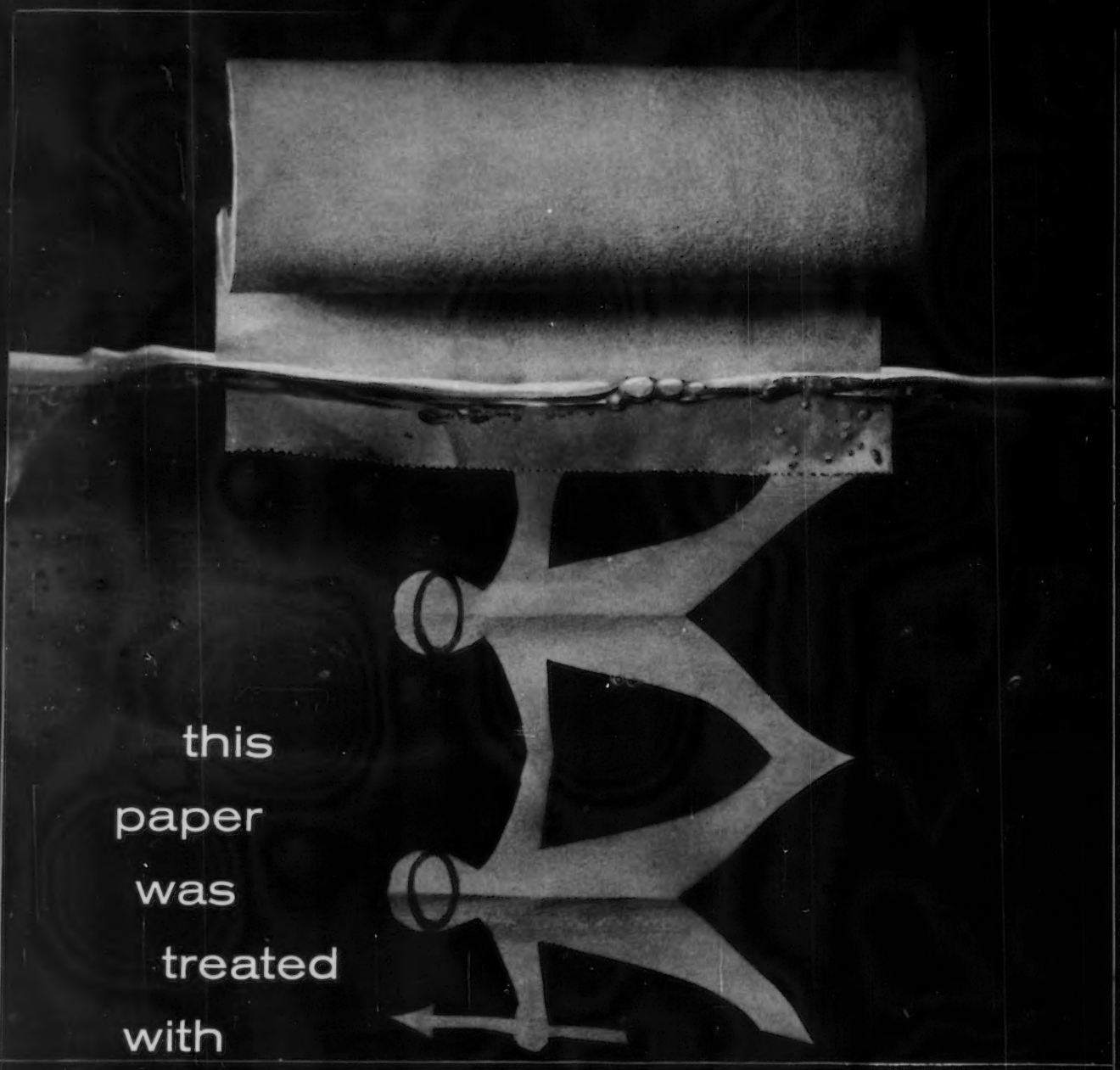

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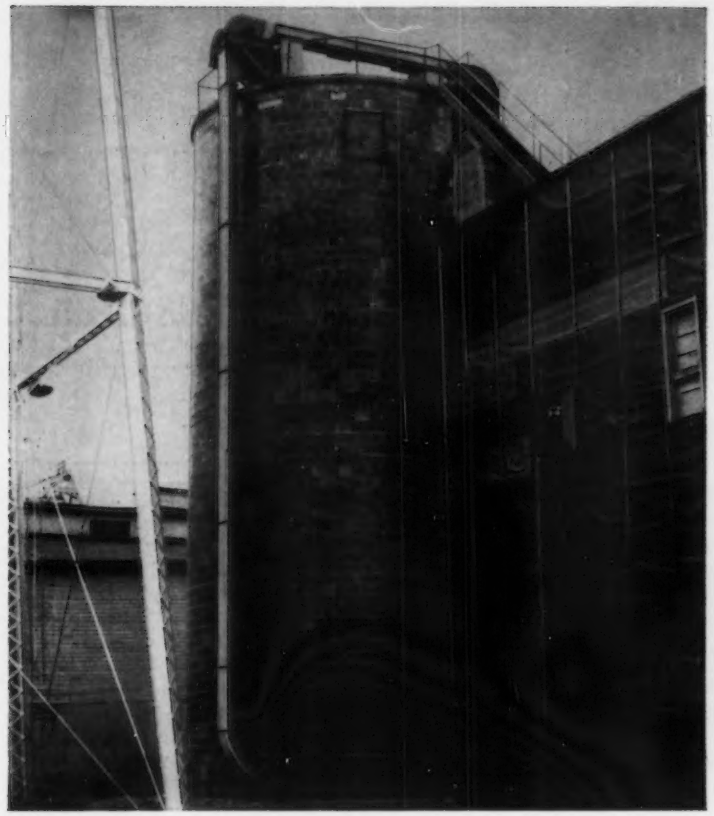
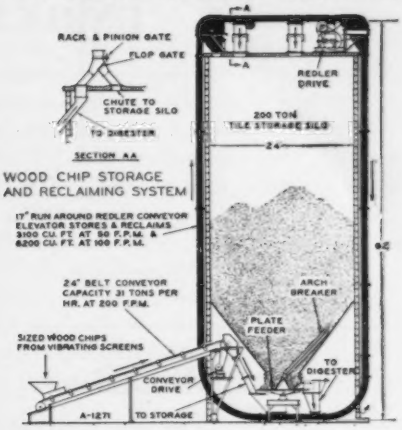
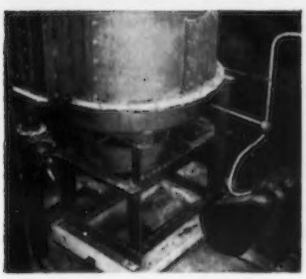



RACK & PINION GATE
FLOP GATE
CHUTE TO STORAGE SILO
TO DIGESTER
SECTION AA
WOOD CHIP STORAGE AND RECLAIMING SYSTEM
17" RUN AROUND REDLER CONVEYOR ELEVATOR STORES & RECLAIMS 3100 CU. FT. AT 50 F.P.M. & 6200 CU. FT. AT 100 F.P.M.
24' BELT CONVEYOR CAPACITY 21 TONS PER HR. AT 200 F.P.M.
SIZED WOOD CHIPS FROM VIBRATING SCREENS
CONVEYOR DRIVE
A-1271
TO STORAGE
REDLER DRIVE
200 TON TILE STORAGE SILO
24'
ARCH BREAKER
PLATE FEEDER
TO DIGESTER

Flow of material diagram above shows a wood chip storage and reclaiming system engineered by Stephens-Adamson.

The S-A triple chain log conveyor picks up logs from a woodyard flume and starts them on their way to the chipper.

EFFICIENT, PROFITABLE LOG & WOOD CHIP HANDLING



The digesters discharge chips into a hopper equipped with a 5-foot diameter two-stage circular bin discharger shown above. Arch-breaker arm keeps chips flowing through discharge outlet.

Arch-breaker arm inside circular bin discharger, above, insures steady flow of chips to REDLER conveyor-elevator.

Over a half century of know-how has been applied by STEPHENS-ADAMSON in engineering and building the most efficient and profitable paper pulp handling systems for storing, reclaiming and conveying to processing. S-A engineering ingenuity is displayed in the efficient handling of logs and wood chips in the paper pulp application illustrated.

From the triple chain log conveyor picking up logs from the woodyard flume to the steady feed insured by the circular bin dischargers at the discharge hoppers of the digesters . . . from the vibrating screen to the vertical closed-circuit REDLER lifting chips 62 feet to discharge points in the silo . . . S-A engineering know-how is applied to save time — cut costs and speed profitable material handling for the pulp and paper industry.

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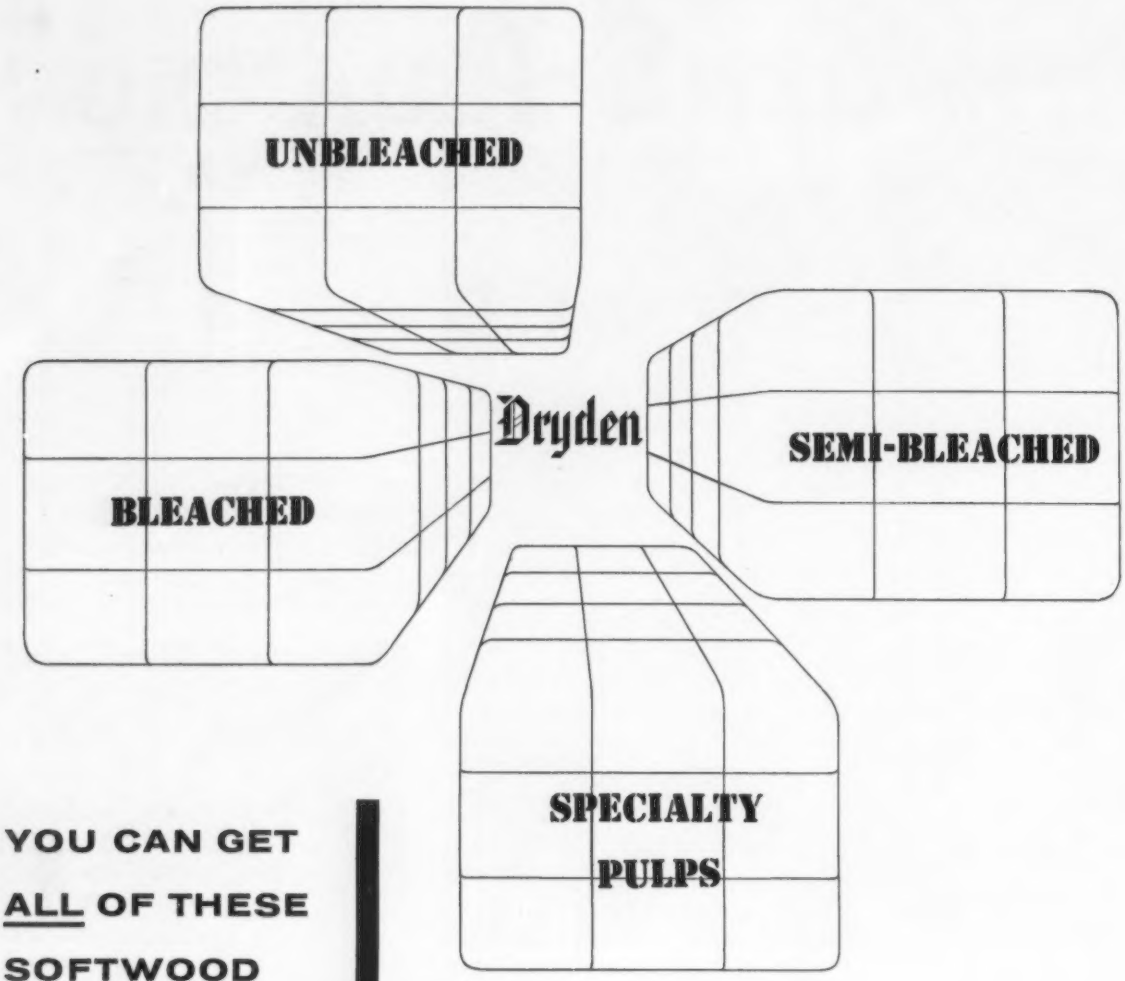

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Trends

What's with the Russians' Industry

We spent last week taking a quick look at the Russian pulp and paper industry. Several pulp and paper mills were visited. The central research institute for pulp and paper was inspected and the director interviewed. We spent one day with the chief engineer of the planning board for the entire U.S.S.R. pulp and paper industry. Our impressions differ only in one major respect (item 7) from other North American observers.

1. The U.S.S.R. has, as is well known, a terrific potential for pulp and paper expansion because of their forest reserves.

2. Present production is inadequate for present consumption. In spite of large imports of pulp and paper many items are in short supply. For example, despite the Russian emphasis on technical education many textbooks are difficult to obtain because of lack of paper to print them on.

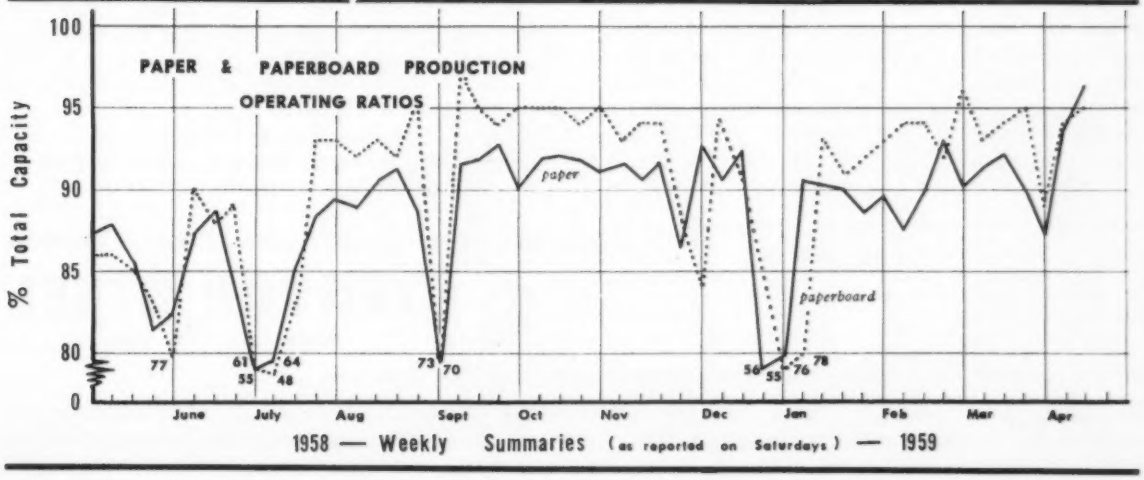
3. The pulp and paper mills are comparable with our mills of twenty years ago. This is not due to a lack of knowledge or ability to modernize them, but because in a completely planned economy, money and efforts are directed where the central powers decide.

4. Major expansion programs are underway to build new pulp and paper mills and increase the production at existing plants.

5. Russian pulp and paper technologists are well acquainted with world-wide pulp and paper developments and are not only familiar with what is going on in nearby Scandinavia, but discussed the North American industry with the editor, mentioning specific developments at individual companies and mills in Canada and the United States.

6. We were advised that the emphasis of the expansion programs is on containerboard, multiwall bag paper, printing papers and dissolving pulps (the U.S.S.R. is a large importer of this latter).

7. Output of present expansion plans is intended for home consumption and not for sale in world markets. *However* in a completely controlled economy the production could be dumped on the world markets, either to obtain necessary exchange or for purely political reasons.



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PAPER TRADE JOURNAL

WEEK OF MAY 4, 1959

Celgar's New Bleached Kraft Mill

Celgar Limited's new bleached kraft pulp mill and adjacent sawmill being built near Castlegar, B. C., will install two Kamyr continuous digesters and an Airborne Flakt dryer.

Approximately 325 men will be required to run the mill when it opens in 1961. Of these 175 will be in the operating group, 76 on maintenance and the remainder salaried personnel.

Some $9 million will be spent in 1959 with a further $10 million committed. All process decisions have been made and commitments given out for most major installations.

The whole matter of chip purchases from the sawmills in a radius around Castlegar is now under study by the company with a view to integrating these mills into the wood chip supply.

Study Reopening of Monarch Mill

Possible manufacture of specialty and lightweight papers at the Monarch mill of Allied Paper Corp. is under study, Allied's board chairman, Arnold H. Maremont has disclosed.

The disclosure concerning future of the now-closed mill on Cork street came at the annual meeting of Allied in Chicago, Ill. The Monarch mill, which formerly produced large quantities of printing, photographic and coated papers, has been shut down since January, 1958.

"The reopening of the Monarch mill at the earliest possible date is one of our primary objectives," Mr. Maremont said. "Should we find justification for the reopening of this mill which represents 20 per cent of our total capacity, we believe our profit picture will improve to a substantial extent immediately."

Allied has contracted with the new owner of Osborn-Midwest, Rapid American Corp., to supply the bulk of paper for this converting operation. Inasmuch as supplying the paper for Osborn-Midwest was the reason for its initial acquisition, the sale, under the conditions mentioned, was a fortunate one for Allied, the chairman commented.

International Adds to Bastrop Mill

Construction of a new 1.2 million addition to International Paper Co.'s pulp and paper mill at Bastrop, La., is under way. The new addition will provide additional bleached pulp and paper capacity upon completion in 1960. International's Bastrop mill produces semi-chemical, kraft and groundwood pulps, as well as corrugating medium and bleached kraft paper and board.

Western Colorado Mill Project Active Again

Preliminary inquiries have been received from pulp and paper companies with regard to the possibility of building a mill to use beetle killed trees in Western Colorado, reports the United States Forest Service which is interested in a large-scale sale of insect-infected timber, from government forests in Western Colorado. One big timber sale was made in 1956 to supply a pulp mill to be built by J. & J. Rogers Co., but the contract was cancelled.

The sale would probably involve timber from the White River National Forest north of Glenwood Springs and other nearby forests where much timber has been killed by beetles.

Rayonier Announces Executive Changes

George E. Scofield has been named general manager of Rayonier pulp mill operations. This is a newly newly created executive post at Rayonier with headquarters in New York City. Mr. Scofield is currently resident manager of the company's Jesup (Georgia) division, largest in the Rayonier group in the United States and Canada.

The company also announced the appointment of Blanton W. Haskell as resident manager of the Jesup division and of Bryan L. Rauschert as resident manager of the company's Fernandina, Fla. division, succeeding Mr. Haskell.

At the same time two other executive changes in the Rayonier manufacturing department were also announced. Lowell M. McGinnis, now assistant resident manager for manufacturing at Jesup, becomes assistant resident manager at the Grays Harbor (Wash.) division to replace Mr. Rauschert. John F. Hooper, currently pulp mill superintendent at Jesup, has been promoted to the position of assistant resident manager at the Port Angeles (Wash.) division. He replaces R. H. Richmond who is returning to Rayonier's Canadian subsidiary, Alaska Pine & Cellulose, Ltd., of Vancouver, B. C.

B. W. Haskell

G. E. Scofield

Brown to Construct New Bermico Plant

Construction of Brown Co.'s new Bermico (fiber sewer pipe) plant on the outskirts of Birmingham, Ala., will start soon.

The new plant will be about the same size as Brown, Corvallis, Ore., Bermico plant and is expected to be completed late this year. R. W. Andrews, a vice president of Brown, will supervise construction, and equipment design will be handled by Bernard Guthrie, plant manager at Corvallis. Negotiations for the plant location were handled by Arthur Taylor, general manager of Brown Co.'s Bermico Division.

Monroe Paper Dispute Settled

Five years of litigation over control of the Monroe Paper Products Co. in Monroe ended last week when Federal Judge Frank A. Picard approved a settlement.

Under the agreement, the company's president, Burton S. Knapp, and the secretary-treasurer, George Blum, will resign as directors, along with a third board member, Don Lathers.

The Waterbury Corrugated Container Corp., of Waterbury, Conn., will be permitted to name six of eight directors. Among them will be John P. Kinsey, president of the Waterbury company.

The present directors will surrender 3,500 shares of stock which will be canceled.

Two of the present members, Common Pleas Judge Arthur W. Sempliner and Charles Rainey, will remain as directors.

West Coast Papermakers To Meet

Paul S. Billington, Weyerhaeuser Timber Co., Pulp Div., Longview, Wash., chairman of the Pacific Section of TAPPI and Frank R. Hamilton, Simpson Paper Co., Everett, Wash., chairman of the Pacific Coast Division of the American Pulp and Paper Mill Superintendents Association recently named speakers and their subjects for the joint meeting of their groups on May 21-23, 1959, at the Gearhart Hotel, Gearhart, Ore.

TAPPI's general technical session will cover "Multiple Water Use," and their panel program will consider "Technical Sales and Industry's Needs."

"New Slants on Quality" will be the theme of the Superintendents' technical session. Their program also includes four panel sessions.

Paper and Board Production

According to the American Paper and Pulp Ass'n., the ratio of the United States production to mill capacity for the week ending April 18, 1959, was 96.4 per cent compared with 95.0 per cent revised for the preceding week. The ratio was 87.2 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending April 18, 1959, was 95 per cent compared with 94 per cent for the preceding week and 87 per cent for the corresponding week a year ago.

(Detailed statistics on page 57.)

TAPPI Section To Hold Meeting in June

The spring meeting of the Maine-N.H. Section of TAPPI will be held on June 12-13, 1959, at the Hotel Samoset in Rockland, Maine. The general chairman of the meeting will be Prof. A. J. Chase, University of Maine. The technical program will be directed by C. T. Bockus, Eastern Fine Paper & Pulp Div., Standard Packaging Corp.; the industrial engineering program by Malcolm White, Oxford Paper Co. The subject of the technical program will be "Control of Production Losses."

Paper Stock Friction Loss Study Told in Movie

A unique study into friction loss in pipes is related in a motion picture released by Allis-Chalmers and the Technical Ass'n. of the Pulp and Paper Industry. Called "The Friction Loss of Paper Stock in Pipes," the 10-minute color, sound movie tells the story behind the study.

Conducted at the University of Maine, under TAPPI auspices, the study started in 1949 and was carried on to resolve the widely varying systems used in figuring pipe friction losses. It was well known that differences of as much as 300 per cent could be obtained through use of several systems then in use.

Fundamental problem to be solved was how to measure the "shear" value of the paper stock to be pumped. Allis-Chalmers furnished a Hi-Density pump and Texrope drives for the test layout.

First solution was a circular motion shear testing device developed by the University of Maine. A straight line shear tester, which verified the results of the circular device, was later designed by A-C's centrifugal pump department.

Later in the project, a simple shear tester, which can produce the same results over and over again, was perfected. With it, specifiers of paper stock handling equipment can estimate frictional losses down to deviations of 20 per cent.

First Quarter Production up 10%

Preliminary figures from the American Paper & Pulp Ass'n. show that paper and board production for the first quarter of 1959 totaled an estimated 8.2 million tons, approximately 10 per cent above production for the comparable period last year. Paper production increased from 3.4 million tons to 3.6 million tons; paperboard (including wet machine board) from 3.3 million tons to 3.9 million tons; construction paper and board from 664 thousand tons to 700 thousand tons.

Pulp and Paper Electrical Engineering Conference

Aspects of systems and control in the paper and pulp industry will be part of the program to be heard by electrical engineers and their industry associates when they assemble June 18 and 19 at the University of Maine, Orono, Me.

The annual conference on electrical engineering as applied to the pulp and paper industry is sponsored by the Pulp and Paper Industry Subcommittee of the American Institute of Electrical Engineers and is usually held on the campus of leading universities throughout the country.

C. H. Hudson, General Electric Co., Atlanta, Ga., is chairman of the AIEE Paper and Pulp Industry Subcommittee, E. K. Murphy, Rayonier, Inc., Jesup, Ga., is vice chairman and C. L. Eletson, Alton Box Board Co., Alton, Ill., is secretary.

The program will include the following papers:

"Do-it-yourself Short-Circuit Calculating Board"—C. L. Eletson, Alton Box Board Co., Alton, Ill;

"Growth of Great Northern Paper Co.'s Power System"—H. Clark and R. H. Hale, Great Northern Paper Co., Millinocket, Me.;

"Magnetic Amplifier Power Supplies for Adjustable Speed Drives"—R. I. Goodwin, General Electric Co.,

Schenectady, N. Y.;

"Electrical Control Systems for Industrial Nuclear Power Plants"—J. J. Lihota, Westinghouse Electric Corp., E. Pittsburgh, Pa.;

"High Voltage A-C Motor Insulation Panel"—Panel Chairman, M. J. Osborne, Bowaters Southern Paper Corp., Calhoun, Tenn. Panel Members: L. F. Hayne, Allis-Chalmers Mfg. Co., E. W. Summers, Westinghouse Electric Corp., R. M. Brissey, General Electric Co., Schenectady, N. Y., J. S. Askey, Elliot Co., Ridgeway, Pa., and P. Hernick, Electric Machinery Mfg. Co.;

"Lightning Protection for Paper Mills"—J. J. Lapp, Rust Engineering Co., Pittsburgh, Pa.;

"Cable Applications in Mills"—E. McIlveen, Okonite Co., Passaic, N. J.;

"Practical Analysis of Regulating Systems for the Paper Industry"—R. J. Farrell, Reliance Electric & Engineering Co., Cleveland, Ohio.

Decision Due on I. P. Water Rights

International Paper Co. has completed filing on an application for water rights on the North Umpqua River in Oregon. Action on three applications made by the company is expected to be taken in May.

The three filings made are on the North Umpqua, on the main Umpqua near Scottsburg, and on the Williamson River in Klamath County.

It is understood that the company plans to build at two of these sites, and would permit the third application to be cancelled, after a decision had been made.

If approved, the company must start work on development of the water rights within one year, otherwise the permit would be automatically cancelled.

The cancellation would be without prejudice, meaning that the application could be refiled after that date.

Oxford Makes Changes in Pulping Operations

Changes to be made in the operation of Oxford Paper Co.'s sulphite pulp mills have been announced by Charles L. Ferguson, mill manager.

The Island Division sulphite mill, closed since April, 1958, will go back into operation during the first week in July, 1959. At the same time the Oxford sulphite pulp mill will be taken out of operation.

The mill manager said that it is necessary to have the Oxford sulphite mill out of operation to permit construction of a major portion of new softwood kraft pulp production facilities and for additions to the hardwood kraft bleaching system.

The Island Division sulphite mill will remain in operation until the new softwood kraft pulp process is put into operation.

Making the change to softwood kraft pulp production is a part of Oxford's $15 million construction and improvement program for 1959-61.

Concentrate Sulphite Liquor by Freezing

Still more spent sulphite liquor may be used up by industries and thus kept out of Wisconsin streams if experiments now under way succeed in freezing the water out of this pulping industry byproduct less expensively than other available methods of concentrating it, the Sulphite Pulp Manufacturers' Research League announced recently.

"Large tonnages of sulphite liquor already are concentrated by evaporation at Wisconsin pulp mills for uses ranging from chemical raw material to industrial fuel," explained Averill J. Wiley, League technical director. "But the relatively high cost of evaporating the excess water out of the liquor has limited its use. If freeze concentration can cut costs or yield a better product, substantially larger tonnages of sulphite liquor could doubtless be marketed in the form of concentrate."

Freeze concentration has previously been attempted according to Wiley, but various technical obstacles prevented its adoption by the industry. The process currently under investigation was developed by Herbert H. Clark, Oshkosh consulting engineer, to provide practical solutions for these earlier difficulties.

Using laboratory-scale equipment, Clark demonstrated his new process to the League's technical committee composed of top scientific experts representing pulp and paper companies that manufacture 44 per cent of all U. S. sulphite pulp. Proceeding with development work, Clark now is constructing a pilot plant with capacity to concentrate two gallons per minute by his freeze process.

"I hung my shirt up to dry and it got caught in the rolls!"

PAPER PEOPLE

E. L. Dozier

S. J. Ryczak

Chesapeake Promotes Dozier and Ryczak

E. L. (Ned) Dozier was promoted to general manufacturing superintendent and Stanley J. Ryczak to pulp mill superintendent it was announced by Sture G. Olsson, president and general manager of The Chesapeake Corp. of Virginia.

Mr. Dozier, now superintendent of the pulp mill, and Mr. Ryczak, his assistant, will assume their new duties immediately. Mr. Dozier will have charge of both pulp and paper mill operations, but Erik Zimmerman, vice president and production manager, will continue in over-all charge of production.

Mr. Dozier joined Chesapeake in 1942 and became pulp mill superintendent in 1948. Mr. Ryczak joined Chesapeake in 1948.

Pollock Paper Becomes St. Regis Division

St. Regis Paper Co. announces that its subsidiary, Pollock Paper Corp., has been merged into the company, and established as a separate division.

The new division is being operated as before under the direction of the former officers of the merged company. Head office of Pollock continues to be located at Dallas, Texas.

Avery, KVP Co., Retires

The KVP Co., Ltd., Espanola, Ontario, Canada, announces the retirement of B. F. Avery, vice chairman of the board of directors of the company, effective May 1st. He will continue to serve as a member of the board of directors.

Mr. Avery was elected president of the Canadian Forestry Association, a federation of autonomous provincial forestry associations, on March 31st. He will maintain residence at Espanola, Ontario.

Fibreboard Elects Three Vice Presidents

Three top executives of Fibreboard Paper Products Corp. were elected vice presidents by the board of directors following the company's annual meeting of shareholders.

Mel R. Baruh, George W. Burgess and Jack H. Grady became officers of the company in what was described by President William L. Keady as "another indication of Fibreboard's continuing emphasis on expansion in both manufacturing and sales."

Mr. Baruh started with Fibreboard as an employee in the company's San Francisco plant in 1922. He has progressed since that date through successive top sales management positions in all phases of the company's packaging business.

George W. Burgess, a graduate of Massachusetts Institute of Technology, joined Fibreboard early in 1958 following a lengthy career in manufacturing management. Since January 1, he has been general manager, Manufacturing Division, responsible for the administration of all Fibreboard plants and manufacturing activities. With his election, his title is vice president—manufacturing.

"Mr. Burgess' election to vice president emphasizes the increasing responsibilities of the Manufacturing Division in bringing the company's current capital expansions into production, especially the 72,000 ton-a-year kraft paperboard machine at the San Joaquin pulp and paperboard mill," Mr. Keady said.

Mr. Grady will now be vice president and general manager—Packaging Group.

Parks Joins Beckett

William Beckett, president, has announced that Joseph J. Parks has been appointed plant engineer at the Beckett Paper Co., Hamilton, Ohio.

Before coming to Beckett, Mr. Parks was associated with the Kimberly-Clark Corp. in Niagara, N. Y., as maintenance engineer, and with the Diamond Gardner Division in Lockland as maintenance superintendent.

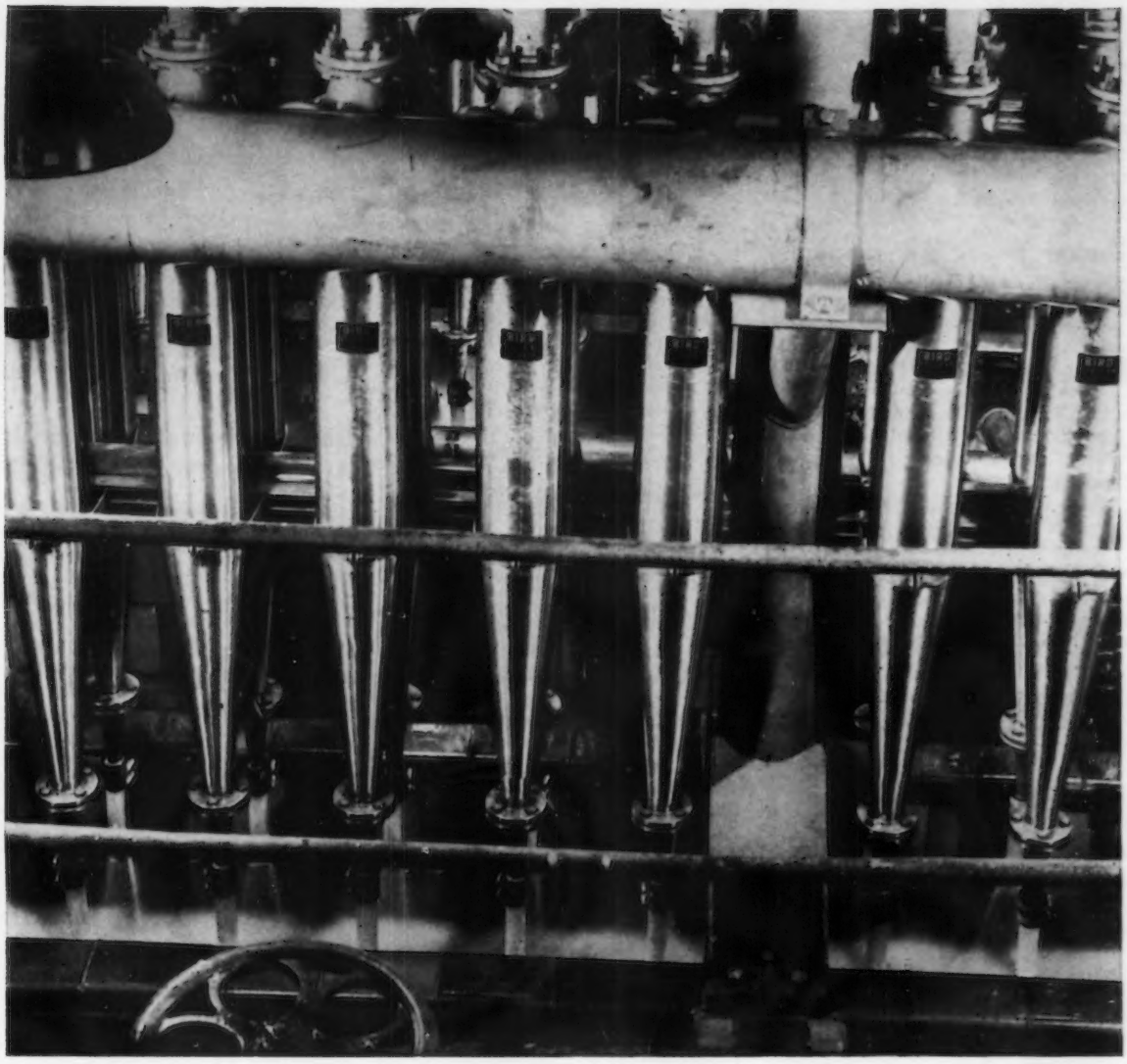
W. W. Gordon

Gordon and Johnston Join Standard Packaging

R. Carl Chandler, board chairman of Standard Packaging Corp., New York, has announced the appointment of William W. Gordon as assistant to the chairman of the board with headquarters in New York.

Mr. Gordon comes to Standard from General Foods where he served as a consultant on packaging. Prior to that he was assistant vice president of St. Regis Paper Co. and general sales manager of its Panelyte Division. He has also served as sales manager of the United States Playing Card Co.

Mr. Chandler also announced the appointment of Harlan B. Johnston as corporate director of purchases



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and traffic manager with headquarters in New York.

Mr. Johnston moves to Standard after 16 years with the Armstrong Cork Co., Lancaster, Pa., where his title was purchasing agent. He has also had wide experience in production management.

Fraser Paper Announces New Appointments

Fraser Paper, Ltd., announced the following appointments in its New York sales office, effective April 6.

Charles J. Rice has been designated Eastern sales manager with responsibility for all sales activities within the jurisdiction of the New York office.

Jack K. Barry has been appointed manager of merchant sales working in cooperation with both the Eastern and Western sales managers.

Lloyd Q. Harris, who recently joined the sales staff, will be assigned a territory in the Eastern Division.

Eugene De Luca

Celgar Names De Luca Manager of New Pulp Mill

Celgar Limited announces the appointment of Eugene De Luca as pulp mill manager of the Celgar Limited bleached kraft pulp mill under construction near Castlegar, B. C. Mr. De Luca, born in Montreal, graduated from the University of Toronto as chemical engineer in 1937. He has 20 years of experience in kraft pulp manufacturing, sales, and sulphite dissolving pulps, with Canadian International Paper Co., Fraser Companies Ltd., Irving Pulp and Paper Co., Ltd., and Alaska Pine and Cellulose Co., Ltd. During the past 2 years he has been manager of the Western Division of Electric Reduction Company Ltd. in North Vancouver.

Westvaco Names Mappus To Promote Clupak

Julius H. Mappus has been appointed supervisor of extensible paper development at the West Virginia Pulp and Paper Co.

The paper company is now licensing competitors to produce its new Clupak paper. Creation of Mappus' new position is designed to enable West Virginia to keep its lead in knowledge of the "stretchable" paper product. Daniel O. Adams, director of research at Westvaco's Covington, Va., plant will replace Mr. Mappus as technical service superintendent.

Sorg Paper Ups Two

Two promotions were announced yesterday by C. H. Eisenmenger, vice president, operations, of the Sorg Paper Co.

Tussell A. Buck, who joined Sorg as a chemist in 1949, has been promoted to general superintendent of mill services. He will supervise the converting, blotting, finishing and traffic operations.

Gardiner W. Scott, with Sorg since 1955 as finishing superintendent, was named mill representative. He will service customer accounts, assist in quality control, and work with the manufacturing department on specific customer problems.

Elmer R. Kohls

Downingtown Names Kohls Ass't. Treasurer

Elmer R. Kohls, general manager of finance for the consolidated Downingtown Paper Companies has been elected to the office of assistant treasurer it was announced by F. Huston McIlvain, president.

Hyatt Joins Hamersley

Harold A. Smith, vice president in charge of manufacturing, The Hamersley Manufacturing Co., papermakers of Garfield, N. J. has announced that John C. Hyatt has joined the company in the Manufacturing Department.

BDSA Recruits Paper Industry Official

The Business and Defense Services Administration, U. S. Department of Commerce, has announced the enrollment of the following pulp, paper, and paperboard industry officials as members in the National Defense Executive Reserve: Robert C. Barienbrock, corporate director, wood procurement, The Mead Corp., Chillicothe, Ohio; and M. Peter Schweitzer, secretary-treasurer, Peter J. Schweitzer, Inc., New York, N. Y.

The Reserve is being recruited to staff the operation of a production agency in event of emergency; and in conformity with the plan to shape the organization on regional lines, the new appointees are drawn from all parts of the country.

Many of the Reservists are expected to attend the two-day conference being held in Washington on May 12-13 when BDSA Reservists will be briefed on current defense mobilization plans. The Reserve held a series of regional conferences last year in connection with Operation Alert.

The Reserve extends into approximately 16 Federal agencies, and was authorized by Congress in 1955 at the request of President Eisenhower to provide skilled manpower for top management and technical positions in a post-attack set up.

Western Kraft Names Duffie Vice President

Western Kraft Corp. announces the appointment of C. R. (Neil) Duffie as a vice president. He is currently resident manager of the corporation's kraft pulp and paper mill at Albany, Ore., and will continue to function in this capacity with the addition of other administrative responsibilities.

Mr. Duffie was formerly chief engineer for Pennsylvania Salt Manufacturing Co., Portland, where he was in charge of budgets, engineering, and technical control for Penn's four western plants. He joined Western Kraft Corp. as mill manager in February 1957.

PJT NEWS OF CONVERTERS

Stuart Hall Moves To New Wis. Plant

Stuart Hall Co., Inc., a school paper manufacturer based in Kansas City, Mo., has begun moving into a branch plant in Green Bay, Wis. The new plant will manufacture such school supplies as filler paper, wireboard notebooks, and tablets.

The plant expects to be in operation by May 1. It will occupy 21,000 square feet of the building at first. On August 1st Stuart Hall will take over all 36,000 square feet of the building.

A total of 35 paper converting machines, representing an investment of about a quarter of a million dollars, will be installed.

A paper converting firm, Stuart Hall will buy its paper from Nekoosa-Edwards Paper Co., Port Edwards, and other paper mills.

Stuart Hall sells its papers nationally, and in Puerto Rico and Hawaii. School papers made here will be distributed primarily in New England and the rest of the East north of Washington, D. C. In the Middle West it will sell to the area north of Chicago.

Graphic Controls To Add Two Companies

Graphic Controls Corp., 2-year-old Buffalo holding company, announced that it will sign options shortly for the acquisition of the Cooper Paper Box Corp. of Buffalo and the Technical Paper Co., Inc., of Linden, N. J.

The acquistions will give Graphic Controls four Buffalo subsidiaries and a total of nine subsidiaries and divisions.

President Max B. E. Clarkson of Graphic Controls said both transactions will be partly for cash and partly involving an exchange of stock. Terms were not disclosed. The two companies will be operated as subsidiaries, continuing with their present managements.

Cooper Paper Box is one of the nation's first makers of folding cartons. Technical Paper, owned and operated by J. Budd Taylor, produces charts for ink-recording and has developed heat sensitive paper and film.

Shy Rosen

Milprint Names Rosen Senior Vice Pres.

Shy Rosen has been appointed to the newly created position of senior vice president of Milprint, Inc., according to Arthur Snapper, president. In his new position Mr. Rosen, a director of Milprint and formerly vice president in charge of planning, will assist in the general management of the corporation.

The appointment of Walter J. Hullinger as vice president and director of marketing of Milprint was also announced. Mr. Hullinger succeeds Bert Hefter, who has resigned but will continue with Milprint in a consulting capacity.

Mr. Rosen has been associated for 29 years with Milprint, one of the nation's leading converters and producers of flexible packaging. For many years he was vice president in charge of Milprint's Eastern operations. In his most recent position of vice president in charge of planning he was responsible for analysis and planning of special projects pertaining to Milprint's expansion.

O. I. Names Cannon Regional Sales Manager

Frank Cannon has been named Eastern regional sales manager of the Owens-Illinois Mutiwall Bag Division, succeeding George S. Harvey, Sr.

Mr. Harvey, who was named to the regional sales post in 1955, has requested that his duties be restricted to the New England area for personal and family reasons. He will serve as sales representative with headquarters in Boston, where he lives.

During 33 years' experience in the multiwall bag business, Mr. Harvey's name has become familiar to industrial packagers throughout the eastern part of the country.

Mr. Cannon, with 10 years' experience in selling multiwall bags, was Philadelphia sales representative at the time of his appointment, covering Pennsylvania, Delaware, Maryland, and parts of Virginia and West Virginia. He will maintain headquarters in the Chrysler Building, in New York City.

Sutphin Elected Inland Director

Inland Container Corp. yesterday announced the election of Samuel R. Sutphin as a director of the firm which is on of the nation's leading producers of corrugated boxes.

Mr. Sutphin is board chairman of the Beveridge Paper Co. of Indianapolis and of the plastic Coating Corp. of Holyoke, Mass.

Dixie Cup Plans Addition To Ft. Smith Plant

A 266,510-square-foot addition to its Fort Smith (Ark) plant was announced today by the Dixie Cup Division of American Can Co.

Work will begin at once on the addition, which will be used as a warehouse. It will increase plant space about 88 per cent and it will adjoin the present main plant on the south. Dixie Cup now occupies more than 303,000 square feet of space.

Announcement of the plant expansion was made by C. L. Van Schaick, Dixie Cup general manager, in Easton, Pa., home of Dixie Cup's main plant. He said the addition will be the fifth made to the plant since 1947 when Dixie Cup manufacture first began in Fort Smith.

Dixie Cup at present leases all its warehouse space in Fort Smith. The new warehouse will replace the rented space, Mr. Van Schaick said, and provide for further expansion either for warehousing or manufacture.

At the same time, the Dixie Cup head disclosed that the Fort Smith plant this year has begun manufacture of Dixie plates and polyethylene-lined "Mira-Glaze" hot drink cups. Previously, production was limited to paper cups only.

New Twin Wire Paper Machine at Scottish Mill....

... is widest of its type in the world. Designed to eliminate wire mark, it is utilized by Tullis Russell & Co. in the manufacture of printing paper.

Wire mark, in fact wire side, has been one of the defects in printing paper with which the printer has had to contend and which the papermaker has been struggling to overcome for many years. In the past various attempts to secure evensidedness have been made by both wire maker and papermaker but not one has been wholly successful.

A possible means of combatting wire mark was apparent to Tullis Russell & Co., Ltd., in Scotland. If the wire mark could not be reduced or covered up, the best thing would be to enclose it. This could be done on a twin wire machine, which would join the webs from two wire parts in such a manner that the wire mark would be enclosed. There were two factors favorable to such an experiment. In the first place, the company already had had experience with twin wire machines in one of their mills, these having been specially installed to produce strong papers for technical purposes. In the second place, they were developing a market for bristol boards under the registered name of "Ivorex" and they wished to expand production of this material. At the same time, they felt that in this type of paper the twin wire principle was most likely to be effective.

Ivorex varies in weight from 187 gms. to 620 gms. per square meter. Therefore the machine speed did not have to be high and the possibility of successfully joining two sheets into one board was greater. Their first twin wire machine made specifically to enclose the wire mark of both sheets was started in 1926 and involved a major alteration of an existing machine.

First Twin Wire Machine

The machine chosen had an 84-inch deckle. A new wet end was installed at a higher level and, because of space requirements, the press part was also taken to this level. The original wire was taken out, moved underneath the raised press part and run in the reverse direction so that when the sheet was turned back for lifting to the first press the wire mark of the sheet came out on top. The sheets from the two wet ends, top with wire mark facing down and bottom with wire mark facing up, were then joined at the first press and con-

tinued through the machine as one sheet. The arrangement was very satisfactory almost immediately.

While the initial experiments were on heavier substance papers it was not long before this machine was making twin wire offset cartridges and imitation art in substances down to 90 gms. per square meter and at speeds of about 250 f.p.m.

The principle was proved and the papers thus made received such favorable comment that in 1931 a 92-inch machine was also converted. In this case it was found convenient to install a semi-basement. The lower wire, running in the reverse direction to the machine, provided a sheet which was dropped on to a carrying felt. As the felt was running in the machine direction it turned the sheet so as to bring the wire mark uppermost. The top wire gave a straight forward sheet and these two sheets were again joined at the first press, the wire mark being again enclosed.

Other Advantages

The advantages of the twin wire sheet are not confined to the elimination of wire mark. Since two wires are used, there is double the drainage area and, therefore, for a sheet of a given substance the stuff can be better beaten, without loss of production, to give both strength and formation. In addition, the two surfaces of the final paper both being "top" surfaces have the same composition, i.e., the same content of clay and fine fibre and thus give the same smoothness and ink absorbency. This means that modification of the ink, which is normal in printing two sides of a single wire sheet, is no longer necessary. These are advantages which are important in all types of paper, heavy or light, matt or smooth.

New Mill Added

When the firm decided that further production capacity was required, there was no question as to the type of machine that would be installed. The new machine would be of the twin wire type but, whereas the previous machines had been obtained by modification, this one would be designed as a twin wire machine right from the beginning. Further, as it was impossible to include a new and modern machine of greater length and width in the existing buildings, the firm had to build a new mill.

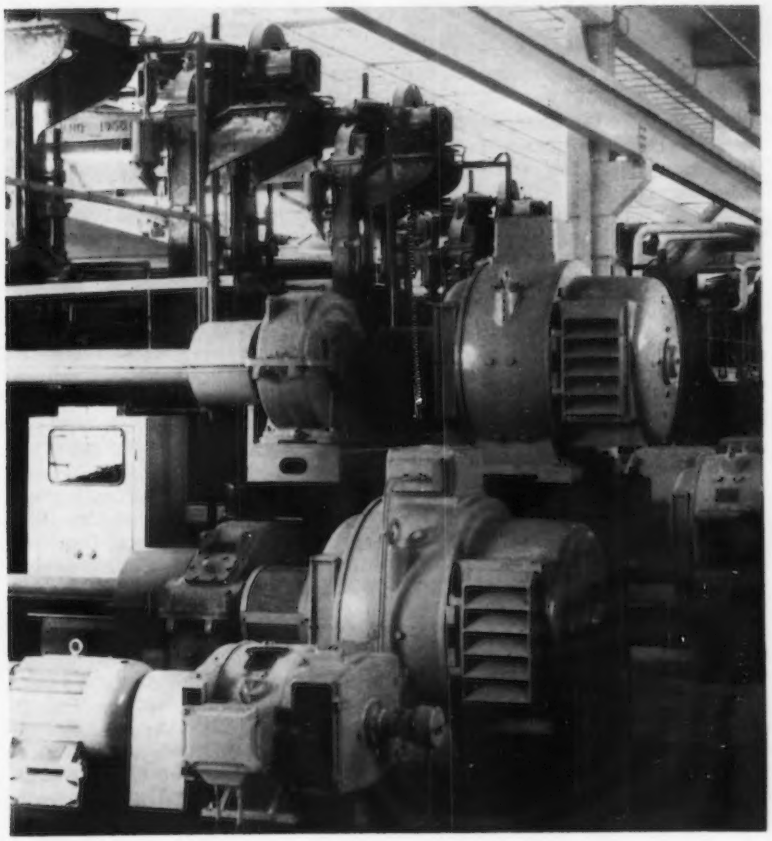
The resultant building abuts on the existing mill and has been arranged to accommodate another machine at a future date. It is 360 feet long, 88 feet wide and 59 feet high. On the north side the walls are of hollow brick construction with glass brick panels for lighting, while on the east and south, where future extensions will take place, the walls are clad with Q-panels of aluminium alloy, with glass wool insulation, to reduce heat loss. An open annex, above which the hot air and ventilating fans are mounted, houses the drive and a basement provides space for the lower wire and auxiliaries. The ceiling is of the Carrier-Ross heated type, as no hood is used, and a laylight along the center gives good lighting on the main floor. The roof deck is flat and suitably insulated.

Widest Twin Wire Machine

The paper machine, constructed by Walmsleys, is 131 inches trim width, and is believed to be the widest twin wire machine in the world. The speed range is 60-600 feet per minute. The two wire parts, of the run-out type for easy wire changing, have stainless steel headboxes with projection slices. The wires are 80 feet long and 150 inches wide. A suction couch roll and six oscillating stainless steel vacuum boxes with Broughton vacuum control, are fitted to each wire. Provision has been made to drive the dandies when required. The web from the top wire is taken on a short carrying felt to the suction combining press, where it meets the web from the lower wire. The sheet then runs to another suction press before passing through a reverse plain press, followed by a straight plain press. The bottom press rolls are all 26-inch diameter, the top granite rolls being 24-inch diameter. Pneumatic loading by Foxboro is used on all presses, with oscillating Vickery doctors on the rolls and Vickery felt washers to condition the felts.

The dry part has thirty-four 5-ft. diameter drying cylinders in two tiers, arranged in six sections. These are mounted on roller bearings and are driven by totally enclosed gears. In some sections only certain of the cylinders are geared, the others being driven by the felt. Each cylinder has a hydraulically oscillated Vickery doctor and lubrication throughout is provided by a Wakefield continuous system. A rope feed is used for leading and a V.J.B. velocity heating sys-

Drive for the new machine is a sectional electric type. Speeds range from 60-600 f.p.m.



View from the dry end shows reel and five calender stacks following the dryer sections. Control panels are located so that operator has good view of section concerned.

The second wire part, located on the floor below, runs in the reverse direction to the rest of the machine.

tem is used in conjunction with Foxboro controls to regulate the drying.

No steam heated felt dryers are used, each felt, instead, having a Happer dryer with an adequate supply of hot air. Fans connected to these dryers extract almost half of the moisture removed from the sheet, and discharge it to atmosphere. Low pressure hot air is provided by a Sturtevant system to remove the remainder of the moisture. Between the 4th and 5th sections there is an intermediate calender followed by a size press between the fifth and sixth sections.

Five stacks of finishing calenders have been installed, the first having 3 rolls and the others 5. All the rolls are fitted with hydraulically oscillated Vickery doctors, and continuous oil feed. Foxboro pneumatic loading is used in conjunction with motorized lifting gear. The calenders are followed by a two-spindle constant tension reel.

The controls for the pneumatic loading and the draw controls for the Harland Drive are grouped in vertical panels sited so that the operator has a good view of the section concerned.

Wide Speed Range

The drive for the machine is a sectional electric speed interlocked drive supplied by Harland Drives, Ltd., and embodying 25 direct current motors varying in size from 10 h.p. to 65 h.p. Paper speeds range up to 600 f.p.m. To obtain the wide speed range of 10 to 1 the motors are supplied from a 500 h.p. synchronous motor driving a variable voltage generator (460-110 volts) connected in series with a buck-boost generator. A low voltage generator on the M.G. set is used for starting and crawling, and a constant voltage generator is used for the machine fields and the control circuits. The d.c. master speed reference motor is supplied from the drive bus-bars and is controlled by a servo mechanism at the desired speed.

Each section motor is interlocked with the master speed reference by a Harland differential regulator giving positive position control and a high rate of response due to the use of an error velocity derivative component. The M. G. set is housed in an annex; the switchgear and differential regulator assembly are situated close by in the machine room annex.

It is of interest to note that Tullis Russell & Co. pioneered the installation of the first Harland drive in 1915 and that the Happer felt dryers, now widely used, were patented by them in 1933.

Stock Preparation

A new machine, especially one of considerably higher capacity involves a new plant for stock preparation. In this instance, stock preparation equipment had to be suitable for a varying furnish, esparto pulp and wood pulp, and for papers of a wide range of basis weights. Earlier experiments had shown that while the full range of products of the mill could not be covered by refiners only, a large percentage of the work might be done this way. The lay-out adopted is therefore for approximately one-third beating and two-thirds refining. It comprises one Solvo pulper of 1400-pound capacity, used for mixing the raw pulps and broke which feed to four Masson Scott Overfall beaters, working at 8 to 10 per cent capacity. The beaten stuff passes to a refiner chest, and between this and the machine chest it is treated by eight Masson Scott Midget refiners running in series and varying in bar width and speed of rotation. Thus, considerable flexibility is secured.

A further refinement is that chests are in duplicate and the beating system can be so divided that the sheets on the individual wires of the twin-wire machine can be different in composition or color.

The method of stock preparation and the paper machine itself, though planned on the basis of past experience, were all untried, but after a short time in which the normal teething troubles were experienced, the machine is producing its rated capacity and the system has proved itself capable of covering satisfactorily the full range of required papers.

Some Intervening Years of a Still-Growing Giant

Per capita consumption of paper products has increased 133 per cent since 1924. A familiar personality retrospects major developments in processes that have contributed to this industry's remarkable growth.

A. P. Schnyder
Consulting Engineer
The Lummus Co.
New York, N. Y.

In the last 35 years, the population of the U. S. A. has grown from 115 to 175 million; concurrently, its consumption of paper products has mushroomed from 180 to 420 pounds per capita (or 385 per cent tonnagewise). At this time the United States leads the remainder of the world combined in the actual consumption of paper products, if only by a slim margin. As a consequence, the paper industry has moved two steps upward on the ladder of national industrial production value to the fifth position and has become the third fastest growing industry.

Noteworthy Firsts

Major developments in the field of marketing and technology have made history in these intervening years. A great many new processes and new designs of equipment and installations have been perfected to cope with mass production under strictest quality control. Such notable "first-time" events are listed chronologically:

1931—Panama City, Fla., mill was equipped with fourdrinier type machines to produce kraft linerboard, up to that time only made on multi-cylinder machines.

1938—Hopewell, Va., mill perfected the secondary headbox for the fourdrinier linerboard machine.

1940—The first newsprint from Southern high-pitch pine came out of a new mill at Lufkin, Tex. This operation brought about a second major innovation by replacing the traditional sulphite with semi-bleached kraft pulp. The pattern of pine groundwood and semi-bleached kraft chemical pulp for southern newsprint furnish has been continued in the four additional postwar Southern mills, whereby, the initial 125 tons per day capacity of one-machine has grown to some 3700 tons per day by 13 machines now installed at Lufkin; Coosa Pines, Ala.; Calhoun, Tenn.; Mobile, Ala.; and Pine Bluff, Ark. The machines range in paper width from 3½ to 5 full-width newsprint rolls at an operating speed of 1500 to 2500 f.p.m.

1951—Potlatch Forests, Inc., at Lewiston, Idaho, was the first to produce foodboard used in milk bottles and a great variety of diversified "green" food packagings. Since then a number of major paper manufacturing companies have or will put into operation similar production units.

1954—"Chemigroundwood" from hardwood was developed to supplement groundwood from spruce and hemlock in a major newsprint mill in the Northeast.

1956—The first cold soda pulping and papermaking operation was successfully started up at Lyon Falls, N. Y.

Demands have slowly outgrown the supply of the long preferred conifers. Pulping processes now have been developed whereby the hardwoods furnish a substantial portion of the pulpwood supply.

New Ideas in Pulping

Ever increasing production has slowly outgrown the supply of the long preferred coniferous pulpwood (excluding the high-pitch content pines). New pulping processes have been developed whereby the hardwoods now furnish a substantial portion of the pulpwood demand. Other fiber sources, as bagasse, are constantly receiving thorough attention. Some of these processes, as well as modifications of long established ones, include:

a. Neutral sulphite semi-chemical, cold soda, and chemigroundwood—all three having the prime objective of broadening the pulpwood supply from the coniferous to the hardwood species and of producing high yield pulps to replace the more costly chemical and mechanical groundwood pulps for which coniferous wood is required.

b. Substitution for calcium-base sulphite liquor of other bases, such as ammonia, magnesium oxide, and most recently, soda, resulting in better yields, quicker processing, and the possibility of recovery of chemicals and fuel value along with the incidental reduction in water pollution.

c. Development of high-yield kraft and sulphite pulping processes by producing coarse pulps that require subsequent mechanical refining at the expense of power requirements. Most of the current production of fourdrinier kraft liner is made by using a high-yield pulp as a base

sheet and adding a top sheet by means of a secondary headbox.

Better Pulp Purification

Developments in pulp purification that are noteworthy:

1. Raw pulp washing in blow pits, pans, and diffusers has been superseded by counter-current methods on batteries of cylinders or presses.

2. Screening and dirt elimination has experienced repeated basic refinements, particularly at the expense of the older flat screens. Centrifugal and rotating vibratory-type screens and cyclonic-design dirt traps are essential for a modern mill. The latest development in the kraft industry, for instance, has the process sequence of washer and screens reversed; viz., the screens preceding the washers and, thereby, displacing the dewatering deckers.

3. Continuous multi-stage bleaching became established earlier but since has been perfected processwise and equipmentwise by introducing new bleaching agents—chlorine dioxide and peroxides; by adopting high density stages; and by reversing flow directions in the bleach towers.

4. Dissolving pulp manufacturing, somewhat apart from a strictly paper manufacturing industry, has adopted basically new processes using twin-stage cooking on a modified kraft cycle. Three major mills have been established in the South which qualitatively and quantitatively outproduce the older sulphite specialty pulp mills in Canada and on the West Coast.

Paper Coating

Paper coating both on-the-machine and off-machine has experienced revolutionary improvements to make possible modern products for magazine papers, foodboard and a variety of highest quality printing papers.

Same Processes and Machines But Greater Capacities

Production capacity per unit has grown during the period as much as five times and more. For instance, in the mid-thirties, the largest kraft linerboard fourdrinier machine had a capacity of 450 tons per day as compared to the latest installation of 1000-1300 tons per day. Newsprint units grew from 200 to 450 tons per day. This is indicative of the trend in all parts of mill departments. To illustrate:

WOOD STORAGE & HANDLING

The two major pulp producing areas, South and Northwest, have basically different conditions with both sharing in the development of bigger and better chippers of multi-knife design.

Chip supply from saw mills is big business in the Northwest, some mills operating exclusively with purchased chips and accumulating mountains of chips. The spectacular hydraulic barkers of various designs and pneumatic chip handling are the result of Northwest progress.

The South due to climate, topography and competition for pulpwood has brought forth concentration yards in forest areas, long-term underwater storage of logs, small-size mechanical barkers, and more spectacularly, the water flume for handling logs from storage to wood preparation. This wet conveying of unbarked logs washes the bark free of sand and dirt to improve its use as fuel. The barking drum continues as the work horse of the industry.

A great many new processes, designs of equipment, and installations have been perfected to cope with mass production under strictest quality control.

DIGESTERS

All-welded construction and stainless cladding have been introduced in the sulphite division, but brick-lined practice is largely continuing. Size of digesters tend to become smaller.

In the kraft and semi-chemical fields, the older tumbling-type units have given way to stationary ones. Their size has increased towards a limit imposed by problems of transportation of these shop-fabricated vessels.

The search for means of converting from batch to continuous operation has resulted in a variety of multi-tube, mechanized assemblies for limited cooking periods to the Kamyr digester for longer cooking periods. These latter installations have been in service only a few years and are, at present, going through a process of eliminating operational handicaps. For instance, operation has demonstrated the necessity of stock storage facilities between digester and washplant in order to isolate each other from occasional or periodic swings.

STOCK WASHING

Counter-current washing by means of full-vacuum and limited-vacuum valveless-type cylinder washers or screw presses are present day practices for every chemical pulping process. The screw presses, still used by a few mills, were first introduced in 1933 to replace the first modern kraft pulp vacuum-type cylinder washer. However, this latter one was successfully perfected a few years later and has found much wider use.

To economize on demands for refining power, the search led to "hot" refining of the stock leaving the blow tank once effective removal of tramp metal had been achieved. Most recently, centrifugal screens have been inserted ahead of the washers for better disposal and recovery of screened tailings.

Major economies in wash plant buildings, along with the accessory tank farm and pumping plant, have been realized by snug design of the washer room, and by including hatches in the roof. Hatches permit huge washer vats and cylinders to be lowered into place by a gantry crane located on the roof. These same arrangements are possible in the bleach washer plant.

In connection with both wash and bleach plants the storage of stock has been changed from lower pumpable stock consistency to a higher consistency as the stock comes off the washer.

BLEACHING

The development of the continuously operating multistage bleach plant experienced an unending series of improvements in chemical efficiency, in product, and in the various mechanics involved. Most spectacular proved to be the introduction of chlorine dioxide as an added chemical, whereby, pulp brightness was increased from 80-85 per cent to 90 per cent and better, to result in a general upgrading of market requirements.

Some of the improvements were based on prior developments in Scandinavian mills; for instance, the high density up-flow tower. Others are home-grown developments; like the high density pumps, streamlined chlorination tower, and methods of generating ClO_2 from a combination of chemicals—sodium chlorate, sulfuric acid, soda ash, sulfur or methanol.

The metallurgical selection of materials to insure protection from excessive corrosion was worked out

from mill to mill so that the up-to-date plant is relatively trouble free.

STOCK PREPARATION

This field has remained relatively stable; that is, only the 150-year old Hollander beater has become a victim of progress. Jordans and other conical-shaped refiners have experienced slight improvements, mostly in mechanizing position control. Several straight disc-type refiners have been brought out, which today meet competition from the upgraded, older jordans. Stock refining is one field of manufacturing that defies neat technical definitions.

PAPER MACHINE

The fourdrinier machine has grown in size and speed to the point where it has practically displaced the cylinder type except for a few paperboard operations. A number of factors have contributed to this progress: antifriction bearings; better designs of machine frames; suction rolls; closed, streamlined headboxes; intelligent white water systems; coordination of vacuum pumping; ventilated and fully-enclosed dryer section; condensate removal systems; and accurate drives with proper draw control between the various sections.

CHEMICAL DIVISION

An up-to-date mill having a chemical pulping operation requires recovery of chemicals for whichever pulping process is used. The recovery is both for the sake of economy and to minimize stream pollution. The progress in this period has been most evident in the kraft field which at one time operated with an evaporator plant having bundles of horizontal tubes, recovery with rotaries and a batch type causticizing plant. The evaporators have been replaced with long vertical tube construction. The recoveries have experienced a series of developments. Two manufacturers today specializing in this field have gained a worldwide reputation. Their units have grown in capacity and boiler design characteristics. In the 30's, for instance, a unit processing liquor from a 150-ton pulp mill and operating at 400 or 600 pounds pressure was considered large. Immediately after World War II, the units grew to 350 tons equivalent, 850 p.s.i.g., 825°F. steam. Today the largest unit has a capacity of 700 tons equivalent, 1200 or 1500 p.s.i.g., 900°F.

The causticizing development on a continuous basis has been gradually improved. The accessory lime kiln has had more spectacular history. In the mid-thirties, several mills installed Herreshoff-type stationary multitray vertical furnaces. Everyone of these proved a failure and were abandoned within one or two years. Kiln improvement regained momentum in postwar years when very long units were adopted for the sake of fuel economy. Gradually the serviceability became important. Through studies, the lime kiln lining, at one time lasting only six months, has been improved to give five years service today.

Refinements on recovery units and lime kilns also improved the overall recovery of chemicals—salt cake consumption has been reduced from 300 to less than 100 pounds per ton and lime from 120 to an insignificant amount of 10 to 15 pounds per ton.

POWER PLANT

Its developments have followed the progress established by public utilities and other major industries. Following the most recent practice of the utilities, major mills are installing boilers of capacity and pressure ranging upward to 500,000 pounds per hour of steam at 1200 to 1500 p.s.i.g. pressure at a correspondingly high temperature; also turbogenerators of 20 to 40,000 kilowatt rating. These big generating units are uniformly designed for 13,800 volts three-phase, 60 cycle current. Boiler feed water treatment is more of a problem to the paper mills on account of sizeable make-up requirements. Treating plants accordingly have become sizeable and complex installations. This trend to a large capacity unit is bringing the paper industry and public utilities together. More and more permanent tie-ins are being established for power interchanging and standby service, and to draw upon the utilities specialized operating know-how

The cost of new plants has become almost unmanageable for lack of coordinated planning, control of supply, and construction facilities.

GENERAL UTILITIES

This area includes power distribution, industrial control and piping.

a. Power Distribution—Its practices and installations have gradually been changed to the point where modern plants have no resemblance to the ones of 35 years ago. High voltage (13,200 volts) power distribution, load center distribution stations, push button control, race-way wiring and armored cables, power transformers insulated with noninflammable fluids, completely shop-assembled structures fully equipped and wired. These cover one phase of the revolution.

Too, 35 years ago, only squirrel cage and wound rotor induction motors were in use. Spot conversion from a.c. to d.c. has grown to supply individual d.c. motors to achieve stepless speed control. The multi-sectional electric paper machine drive combination is the outstanding example of this trend. In recent years, though, mechanical line shaft drive has been perfected to the point where the benefits achieved by d.c. motors can be had with mechanical devices. However, the line shaft drive uses d.c. motors as helpers to a considerable degree. Individual d.c. drives are found on cylinder washers, winders and rewinders, some pulpwood conveyors, and even pumps.

Motors have been perfected to fit any service: in underwater situations, difficult chemical plants, hot locations, etc.

Motors are now fully push-button controlled and are provided with adequate protection for overload and short circuit conditions. Full voltage starting has been increased from medium size motors of 20 h.p. to the largest synchronous motors driving grinders in Southern newsprint mills (4000 to 9000 h.p.).

b. Industrial Control—This field is a creation of the period and has been perfected to the point where the human element in the industry is supplemented and often replaced in the complex operations throughout the pulp and paper mill. Tailor-made controls and instrumentation are available every step in the operation. This achievement is now resulting in major concentrations of the primary control points at a few important centers in a mill. Every new mill seems to improve to a degree on the last one. The control centers resemble the cockpit of a modern airplane with the operators functioning as the pilots.

c. Piping—Piping 35 years ago was made from cast iron, steel, brass and bronze and, to a limited extent, of ceramic and of wood stave. This choice has been broadened to include the various stainless types; more recently to the rubber and Saran-lined;

but mainly to synthetic pipes and transite. The synthetic material has proved most usable in small sizes and has helped to make industrial control practically acceptable. In the field of pipe valving the butterfly construction, Saunders patent, pressure seal and inexpensive gate-type construction have come to the forefront.

RESEARCH

This department has become a company fostered essential to supplement the public institutions. The diversity of subjects under investigation extend from studies of artificial fertilizing of man-made tree farms, forest genetics, to various bacteriological problems.

FINANCIAL

The cost of new plants in recent years has become almost unmanageable for lack of coordinated planning, control of supply and construction facilities. These costs also have been influenced by slowness of construction programs. The major factor in new construction is to provide the combination of equipment, material and the necessary labor force available in the field to carry a project to completion, without undue loss of time. The momentum in itself will result in additional efficiency so that the operators can take over the plant without delay and without having exhausted their patience beyond limits.

Is This the End?

Since World War II construction of pulp and paper mills has been encouraged by the United Nations organization, FAO, which resulted in new plants in Asia and other retarded areas. Looking at the home ground, the current construction of the second mill at Sitka, Alaska once again proves the dynamic vitality of the industry. And this dynamic vitality can be effectively demonstrated by examining scaled breakdown values of production growth, comparing tonnage production of 1924 with that of 1955. Using the 1924 figure as the base (or 100 per cent), the 1955 figures compare as follows:

Total output	385%
Paper board	450%
Printing paper	325%
Fine paper	340%
Coarse paper	300%
Sanitary tissue	700%
Building board, etc.	900%

Newsprint consumption grew by 235 per cent, but production shifted to Canada and back so that an understandable comparison proves too complex.

PJT NEW LITERATURE

New Manual on Paper Machine Felts

A new comprehensive technical manual on the manufacture, operation and maintenance of paper machine felts has just been published by Albany Felt Co., Albany, N. Y.

The manual provides mill managers, superintendents and machine operators with complete data on such subjects as: proper installation and operation of felts, washing techniques, felt damage and its control, and care of felts in storage and in operation.

Illustrated with color photographs and detailed drawings, it is the most complete reference book on felts and felt application ever published, according to the company.

Of particular interest is the section on the increasing use synthetics and chemical treatments to improve the performance and extend the life of papermakers felts.

The new manual is the result of the combined efforts of the sales engineering, laboratory, felt design and service engineering groups at Albany Felt. It is expected that paper makers will find the book of value not only as a training aid, but as a standard reference work.

Fife
Equipment

Covers complete line of automatic web guides, pneumo-hydraulic power units, Shifta-roll stands and centering system. Catalog. Fife Mfg. Co., P. O. Box 9815, Oklahoma City 18, Okla.

P&P Micro-H
Chemical Feeder

Accurately meters, regulates, and feeds liquid chemicals at low flow rates. Sheet 70M2011. Fischer & Porter Co., 96 Jacksonville Rd., Hatboro, Pa.

Watertight
Masonry

Outlines major considerations in designing tight masonry walls. Also describes the role played by Omicron Mortarproofing. Bulletin O.M.-8A, Master Builders Co., Cleveland 3, Ohio.

I-R 834 Reversible
Impactool

Contains illustrated sales copy, specifications and list of standard and optional equipment as well as accessories. Form 5248. Ingersoll-Rand Co., 11 Broadway, New York, N. Y.

If You Missed...

any of these articles which appeared in the April issues, you should have your own subscription to PAPER TRADE JOURNAL.

Looking at Calender Box Treatment from the Converters Viewpoint
Wood Residue Chip Handling in the West—A Review
Computer Applications in the Paper Industry
Use of Size Press for Application of Conventional Paper Coatings
A Panorama of the Residue Chip Recovery Program in the South
Considerations in the Distribution of Lubricant to Dryer Bearings and Gears
Minnesota and Ontario Adds Versatile New Paper Machine
S. D. Warren Gains Major Benefits By Preparing Furnishes Separately
Ecusta Aims "Arrow" at Lightweight Paper Market
Pulp, Paper and Board Industry Report
Designs and Dilemmas of Calender Box Equipment
From Chips to Paper Machine with Two Men
Finch Pruyn Continues to Modernize its Finishing and Converting
Pressurized Screening Proves Out in Many New Applications

DRAMATIC MOMENTS IN PAPER-MAKING PROGRESS

What can match the thrill of the first run on a new paper-making machine? *Only 90 minutes after the first start-up, press-ready paper was produced at Southland Paper Mills, Lufkin, Texas* on a new Pusey and Jones Fourdrinier machine.

This new machine was a huge, 270-inch wire-width Fourdrinier, the third complete paper-making machine designed, built and installed by Pusey and Jones for Southland. It typifies Pusey and Jones' ability to provide on-time start-ups for paper mills the world around.

Top photograph: *Wire of new Southland machine being moved into operating position as it rests on the power-operated undercarriage of Pusey and Jones' Rapi-Drape Wire Changing Device.*

Bottom photograph: *Overall view of new Southland Paper Mills machine.*

Data on Southland's New Fourdrinier Machine:

Wire Width, length and speed: *270" wide x 118' long. Speed: 2500 f.p.m.*

Number of presses: *Two 42" diameter main suction press rolls, complete with vacuum pickup.*

Dryers: *53 main paper dryers; one sweat dryer; 8 felt dryers, 60" diameter x 268" face.*

Calendar stacks: *One, 8-roll with 40" diameter bottom roll, 26" diameter next-to-bottom roll, and six 18" diameter intermediate and top rolls.*

Reel: *Latest horizontal, uniform-speed type.*

THE PUSEY AND JONES CORPORATION

WILMINGTON 99, DELAWARE

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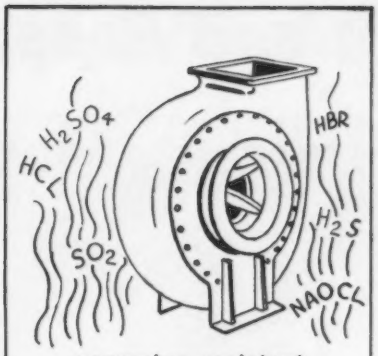

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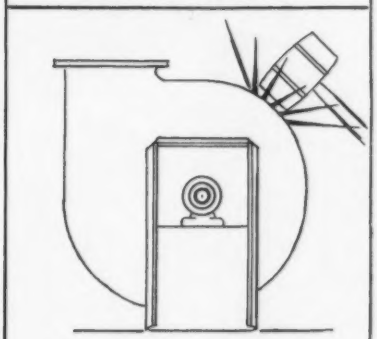

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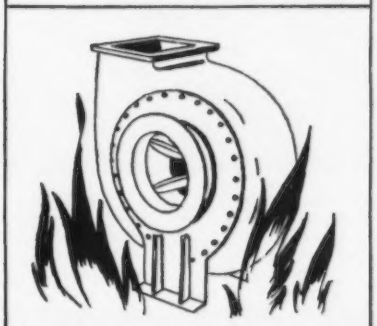

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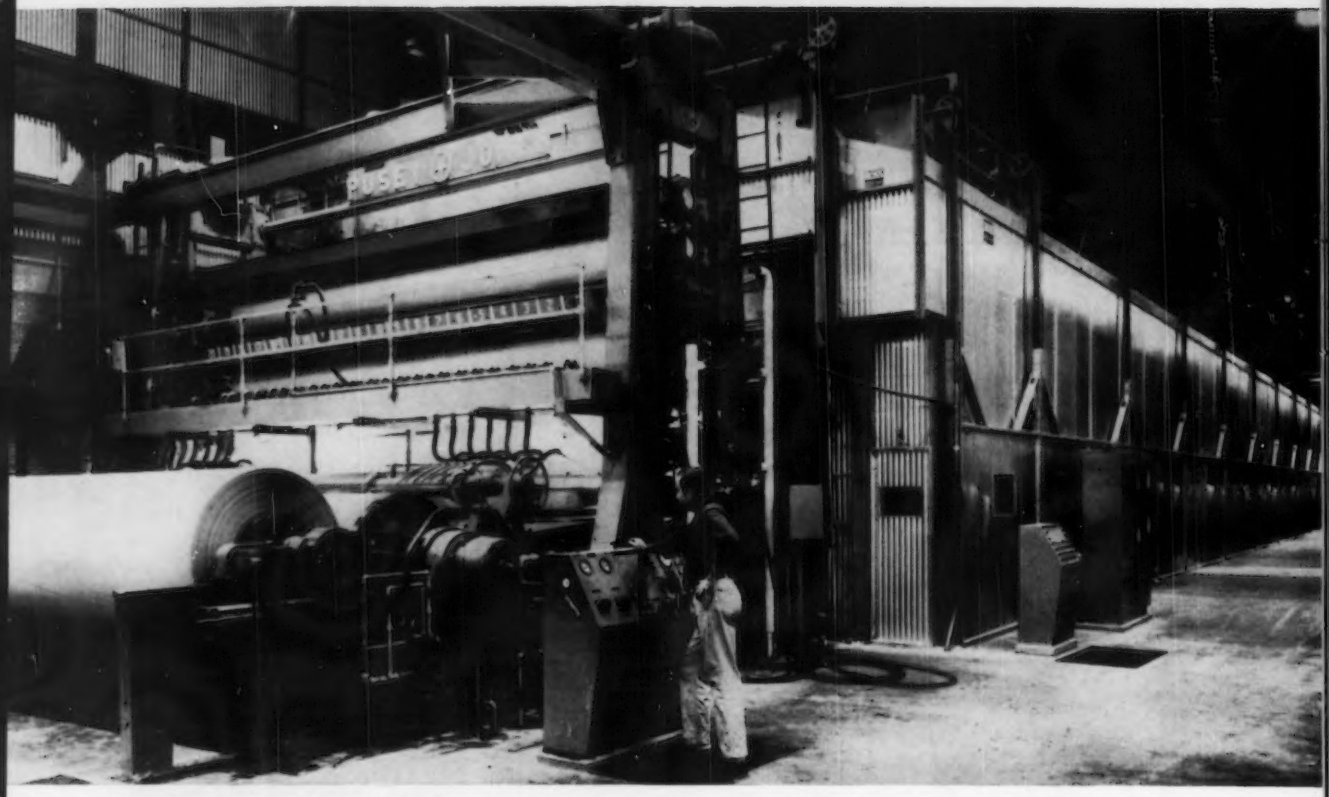
PRODUCTS SYSTEM ENGINEERED VALUE IN USE

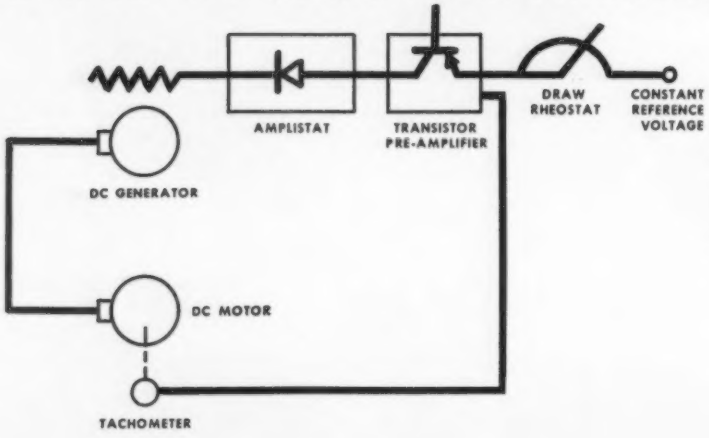
Southland Paper



DESIGNED FOR NEWSPRINT PRODUCTION AT 2500 FPM, Southland's new No. 4 paper machine was built by Pusey and Jones Corporation, powered by a General Electric multiple-generator sectional drive. The new machine, 270 inches in width, uses 14 G-E drive motors totalling more than 3000 horsepower.

GENERAL ELECTRIC DRIVES ARE SYSTEM ENGINEERED

HOW THE G-E MULTIPLE GENERATOR SYSTEM WORKS



Each section motor operates on generator voltage control. The motor speed is measured by a tachometer, whose output voltage is compared with the over-all machine's constant reference voltage. With even the slightest difference between the two voltages, the transistorized preamplifier responds instantly through an amplistat regulator to change the generator voltage, maintaining the exact desired motor speed.

specified General Electric Drive featuring new transistor amplistat

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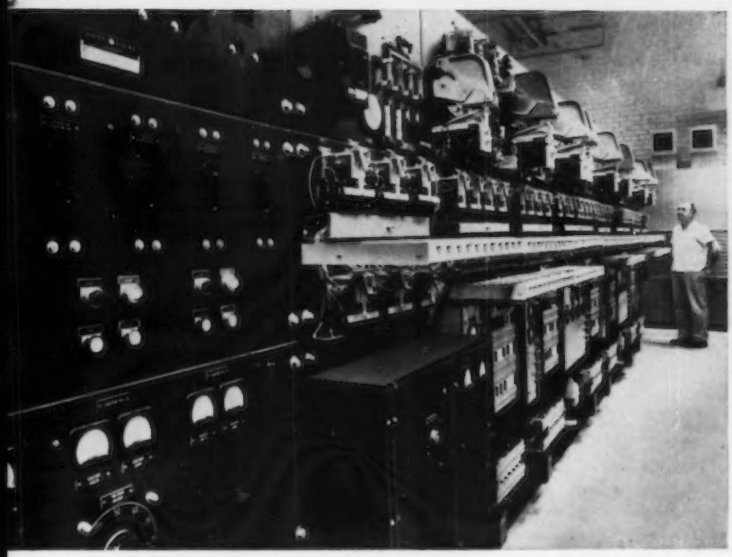
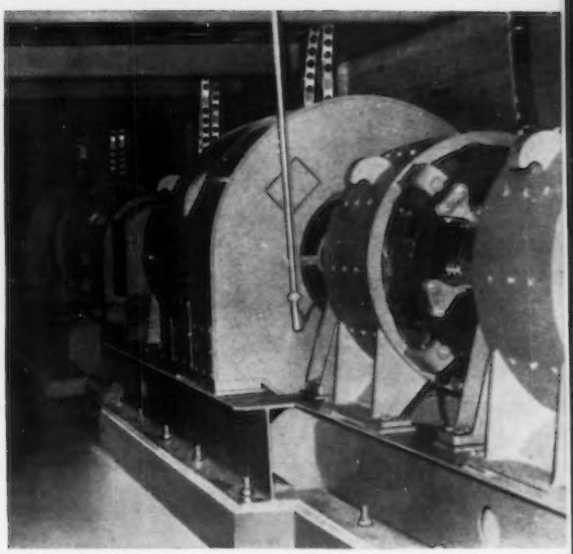


G-E STATIC SPEED REGULATOR provides high accuracy, fast response control. Amplistat power amplifier and completely sealed transistor pre-amplifier give long-life, trouble-free operation and reduce costly unscheduled downtime.



DEPENDABLE POWER is supplied by two G-E MG sets, each driven by a 1500-hp synchronous motor. Separate generator for each section adds flexibility and simplifies maintenance.

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Southland Paper Mills' new No. 4 paper machine at their Lufkin, Texas mill, powered by a General Electric multiple-generator sectional drive, presents a major advance in drive systems for the paper industry.

New technology, such as use of transistors and magnetic amplifiers in the G-E static speed control, provides trouble-free, reliable operation to increase machine availability and reduce maintenance time and expense. Result: *greater output.*

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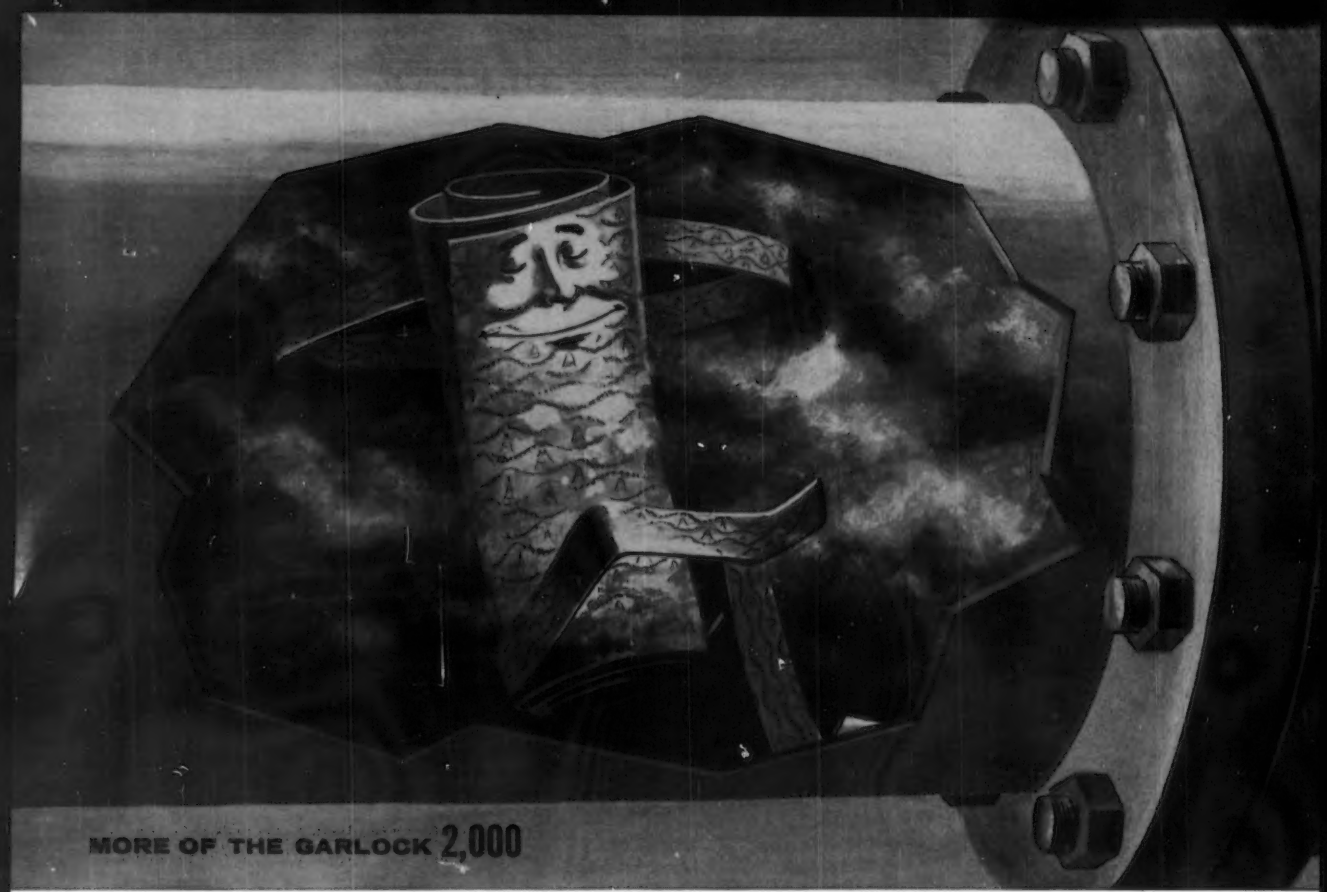
GENERAL ELECTRIC



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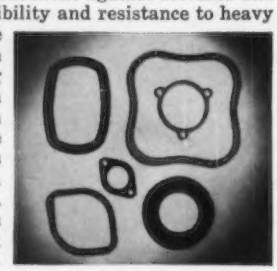

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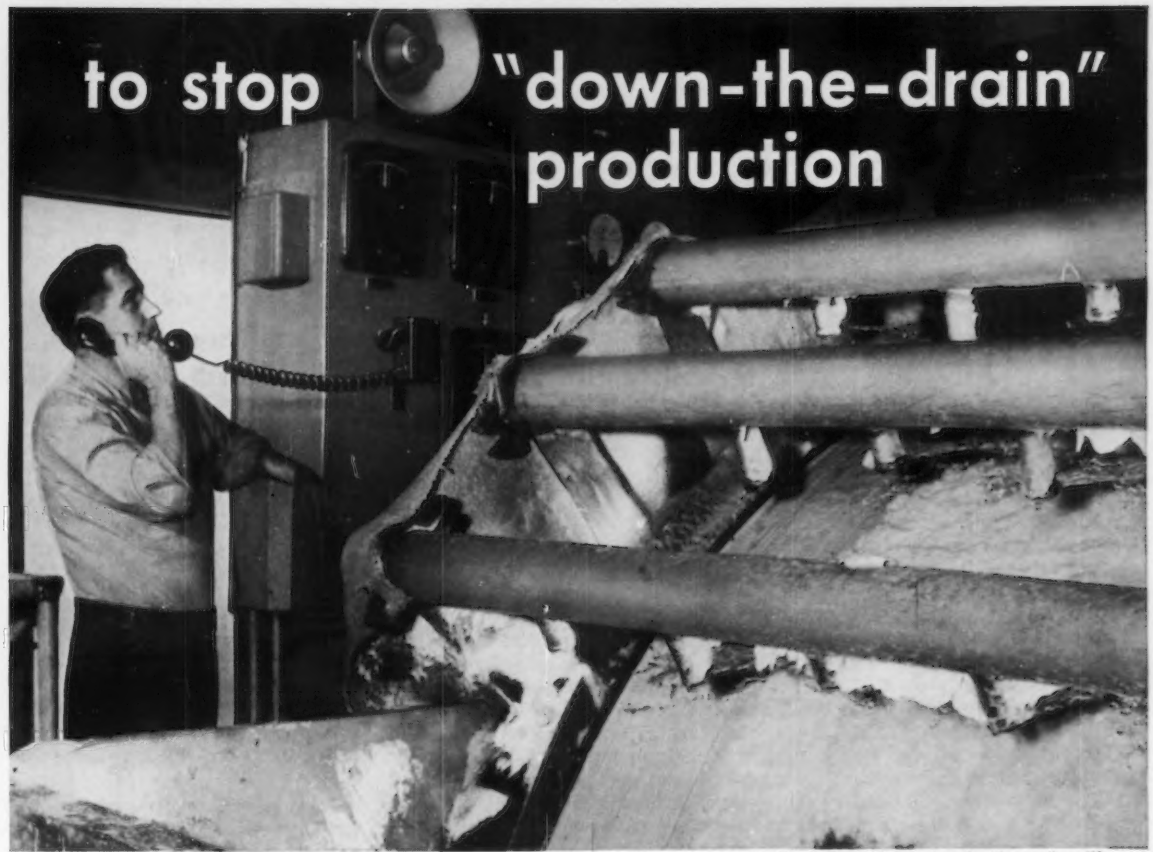

Operator in pulp washing section uses Executone to get instructions for controlling flow of wood pulp through mill.

Fast instructions via Executone Intercom saves Scott Paper Company $10,000 annually

The manufacture of pulp and paper by the Scott Paper Company is a continuous production-line operation. When wood pulp enters huge vats to be bleached and washed, wasteful overflow may occur unless the pulp stream is under constant control.

Before the installation of an Executone Intercom System at their mill in Winslow, Maine, Scott was unable to halt overflow fast enough to prevent costly stock waste. Now, simply by speaking into a nearby Executone station, a Scott operator can instantly alert production personnel to prevent overflow waste.

Scott estimates that Executone saves them $10,000 a year at the Winslow plant because operators can pinpoint trouble spots instantly and stop "down-the-drain" production. Material waste and machine downtime have been drastically reduced.

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"To Reject Or Not To Reject"

That is the question! The author relates below how the non-statistician can safely use analyses prepared by trained statisticians to determine whether production meets or does not meet specifications.

Fred Streit,
Manager of Technical Services,
Hudson Pulp and Paper Corp.,
New York 22, N. Y.

In most organizations, we can readily turn to the chief inspector and ask, "What per cent of our production failed to meet specifications?" These data are easily compiled by reviewing a list of rejections during the past 30 days, summing it and dividing by the total tonnage for the period. We now have a per cent defective or rejected.

Is the Data Biased?

The oft-raised argument of whether our tests were adequate or our data biased, has considerable merit in that we have need for a method to determine theoretically what per cent of all the paper did not meet specifications. It is to be remembered that normally the acceptance or rejection of a reel of paper is based upon the samples obtained at the top of the reel, in tests such as basis weight. The questions which may be raised are:

1. Do the samples taken at the top of the reel truly represent production?
2. Are the reels that are being rejected truly below specifications or might the rejections be due to sampling error or chance variation?
3. Is there a simple way to mathematically determine the theoretical per cent of reels not meeting specifications?

Randomness and Normality

Logically and through statistical procedures, we can establish that the samples taken at the top of the reel do actually represent the entire reel of paper, even when considering variation that occurs due to chance. Likewise, we can establish that the samples taken do very closely approach a normal population. A basis weight sample is only six square feet of paper. A turn of the reel at a 36-inch diameter winds about ten feet of paper in machine direction which on a 120-inch trim, turns up about 100 square feet of paper. In the course of normal production, it can be safely assumed that we might run at least ten turns of paper from the instant the decision is made to change the reel.

Conceivably then, we will check six square feet of paper from a possible 1,000 square feet. This, then, gives us some randomness at the point of selecting samples.

Two additional considerations on the randomness of these samples are:

1. The effects of turning up a stub reel on the subsequent positions of the top of the reel, and,
2. The slabbing of paper on the rewinder to find clean, unwrinkled samples, etc.

Variation

The best method of determining the validity of rejecting a reel based upon reel samples, must relate to the amount of variation present in that reel and the amount of variation present in the entire run. Examining the data seen in Table I, columns 1, 2, and 3, it is to be noted that 500 samples of 60-pound kraft were weighed and reported. Six reels were below 57 pounds and, based upon 5 per cent tolerance, or 3 lbs., would have been rejected. Eight reels would have been rejected for being above 63 pounds, the maximum specification.

The question involved is what would happen if another sample was taken from the rejected reels? Would the sample come back into specifications? Is it possible that the samples found outside of specifications occurred due to chance variation or is there sufficient paper in the entire run outside the specification to make the samples definitely rejectable?

A Graphic Presentation

The graphic presentation of the data in Table I, as shown in Figure 1, not only answer this question but further can advise:

1. The average basis weight of the run.
2. The per cent above or below any basis weight within the range.
3. The per cent outside of specifications.
4. A comparison of variation from lot to lot or period to period.

The method to prepare this graphic presentation is as follows:

A. Prepare a cumulative frequency distribution; then establish each class interval frequency as a per cent of total. (See Table I, columns 4 and 5).

B. Using Keuffel and Esser Co. Probability Scale Paper No. 358-23 or similar product, plot the cumula-

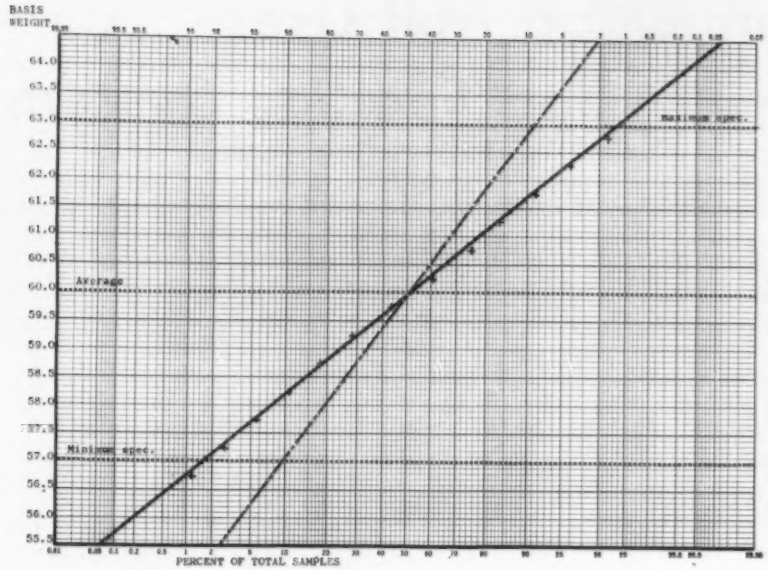


Figure 1
Graph of the data presented in Table I. The solid line represents the cumulative frequency distribution (expressed as a percent) of the basis weights of roll samples. The dashed line depicts similar data on a monthly basis to show how variation affects specifications.

tive per cent distribution from Table I. This is shown by the solid line in Figure 1.

C. Draw a line which best fits the plotted points on the graph.

How to Use Graph

It is to be remembered that, by definition of a symmetrical, normal population, 50 per cent of the readings will be above the average and 50 per cent below. And we have previously established that our 500 samples are representative of a normal population. Thus, by following the 50 per cent line from the horizontal axis (abscissa) to where it intersects the solid line, and then reading across to the basis weight axis (ordinate), one will find that the average basis weight is 60 pounds. Similarly, we can select on the basis weight axis, those horizontal lines which represent the minimum and maximum specifications (dotted lines). By moving across the graph to where they intersect the solid line, we then read on the abscissa that 1.2 per cent of the reels should be above the maximum and 1.5 per cent should be below the minimum. In comparison, then, between what we actually rejected and what is theoretically outside of specifications is:

	Theoretical Rejection	Actually Rejected
Below 57-lbs.	1.5%	1.2%
Above 63-lbs.	1.2%	1.6%

Apparently then, the paper rejected for being above specifications should not be passed in that the basis weight of the samples in this category appears not to have occurred due to chance. If we resample these reels, the new samples would be expected to be outside of specifications. Since the percentages below minimum agree substantially well, it can be assumed that resampling would continue to reject this paper also.

TABLE I
BASIS WEIGHT OF 500 REEL SAMPLES, IN CLASSES, AND THEIR FREQUENCY AND CUMULATIVE FREQUENCY DISTRIBUTIONS.

1. Basis Weight Classes	2. Class Midpoint	3. Number of Reels	4. Cumulative Total	5. Cumulative Per Cent of Total (500)
56.5 to 56.99	56.75	6	6	1.2%
57.0 to 57.49	57.25	8	14	2.8%
57.5 to 57.99	57.75	15	29	5.8%
58.0 to 58.49	58.25	23	52	10.4%
58.5 to 58.99	58.75	38	90	18.0%
59.0 to 59.49	59.25	51	141	28.2%
59.5 to 59.99	59.75	75	216	43.2%
60.0 to 60.49	60.25	90	306	61.2%
60.5 to 60.99	60.75	73	379	75.8%
61.0 to 61.49	61.25	42	421	84.2%
61.5 to 61.99	61.75	37	458	91.6%
62.0 to 62.49	62.25	22	480	96.0%
62.5 to 62.99	62.75	12	492	98.4%
63.0 to 63.49	63.25	8	500	100.0%
		500		

Gleaning Other Info.

Additional information from this analysis could be gleaned on a monthly basis. The dashed line in Figure 1 is assumed data for a subsequent period. Note that the average has remained the same but that now 9.0 per cent of the reels are below minimum specifications and 9.0 per cent are above maximum. This could only have occurred through increases in variation. As a rule of thumb, it can be stated that the slope (slant) of the line gives a comparison of variation from month to month. As the line approaches the vertical position, variation is increasing. If it approaches the horizontal, variation is decreasing.

The use of probability paper can prove to be an invaluable tool to operations personnel in the mill. It provides a rapid, meaningful evaluation of conformance to specifications. The non-statistician chief inspector can now safely answer the question, "Should this paper have been rejected due to not meeting specifications or not?"

Swedish Groundwood Mill Uses New Wood Feeding System

Installation of an automatic wood feeding system at the Kvarnsveden Paper Mills in Sweden has resulted in increased production and greatly reduced manpower requirements.

B. Soderberg,
Technical Service Engineer

The Kvarnsveden Paper Mills, owned by Stora Kopparbergs Bergslags AB of Falun, Sweden, are manufacturers of newsprint and magazine paper. In 1953 the mill had a capacity of 125,000 metric tons per year. At that time the groundwood mill was equipped with thirty-two 700 h.p. Miag grinders driven by ten water turbines of 2100 h.p. each and by one electric motor. At that time, manpower requirements for the grinders were 26 men per shift, each man feeding twelve solid cubic meters per shift.

In early 1954, plans were formed to increase production to about 180,000 metric tons per year. The expansion program included the installation of a new paper machine and construction of a new groundwood mill, as well as rebuilding the old groundwood mill. In the old groundwood mill, 11 chain grinders were installed, driven by water turbines. In the new mill six motor-driven grinders were installed.

During the planning stages, it was deemed advisable to carry out experiments with respect to automatic wood-feeding. Through these experiments we found it possible to reduce manpower from the 78 required for three shifts to 12 men per day. In that way it was possible to increase production without increasing labor requirements, and automatic wood-feeding systems were installed in both groundwood mills.

Wood Feeding System

Logs, in three meter lengths, are hauled by rail to the wood room and cut into one meter lengths in an automatic slasher. The logs next go to a barking drum and are carried on a rubber belt conveyor to an accelerating roller conveyor. This consists

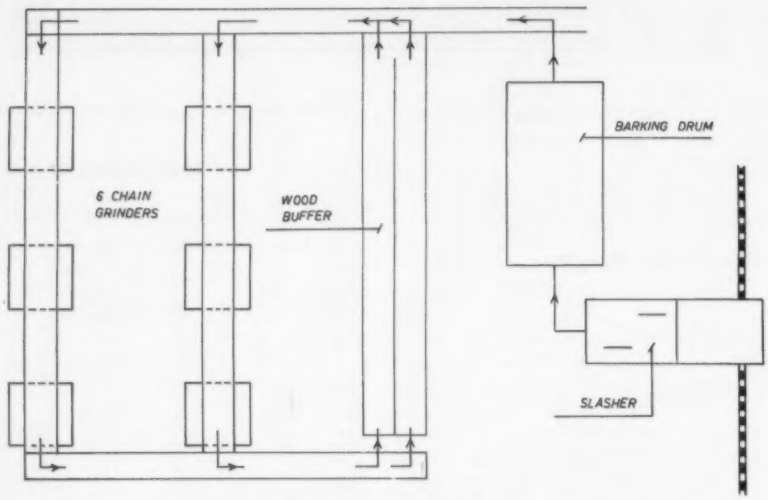


Figure 1—Layout of Kvarnsveden Paper Mills woodfeeding system is shown above.

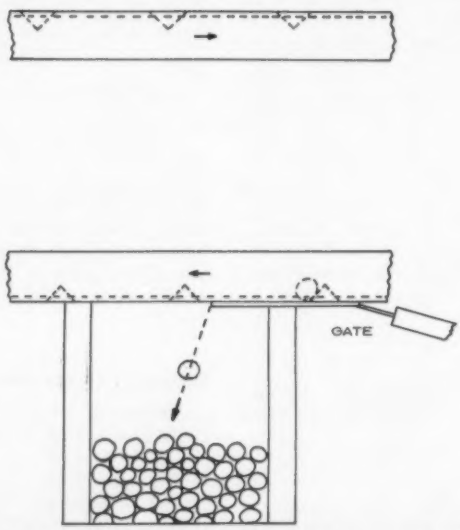
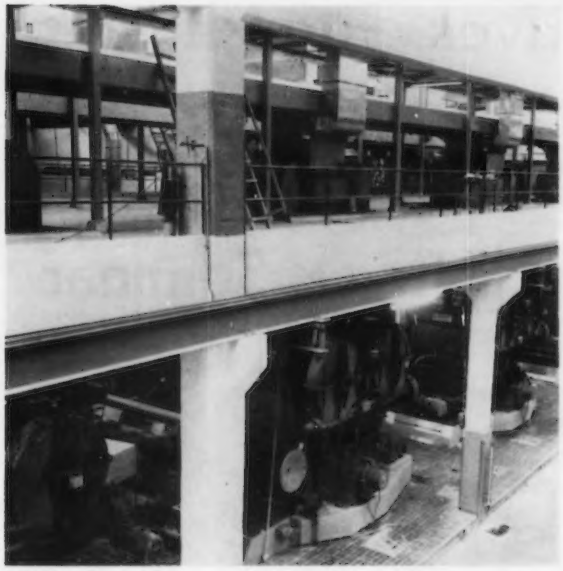


Figure 2—Sketch shows log being carried by spurred conveyor. Another log is falling into the grinder magazine through the open sliding gate.

View of spurred conveyor carrying logs over the line of grinders. When feeding a grinder, a remotely controlled sliding gate is opened allowing the log to fall into the magazine as in Figure 2.



View shows two levels in grinder room, conveyor and top of magazine on upper level, grinders on lower level.

Workers keep logs in parallel position within magazine, also control sliding gates for loading.

of about 15 grooved rolls, chain driven, with the number of revolutions per minute increasing from the first to the last roll. This conveyor positions the logs so that they are parallel to the direction of travel, and carries them to a pocket ahead of the loading conveyor.

A conveyor chain which is provided with crosswise spurs of triangular cross section passes through this pocket, each spur picking up a log and carrying it to the grinders. The pocket functions as a buffer zone so that each spur picks up a log. The spurred conveyor carries the logs over a line of grinders, each of which is fed through a sliding gate as shown in Fig. 2. The gate is pneumatically operated, and is remotely controlled by a worker who also keeps the logs in parallel position within the magazine. When desired, the logs may be conveyed across the grinders, and to a buffer area from which they can subsequently be fed back to the conveyor leading to the grinders as shown in Fig. 1.

Results from New System

The new feeding system makes it possible for one man to operate five grinders and feed 150 solid cubic meters per shift. This corresponds to 9,000 k.w. per man.

The following table compares the amount of wood fed by the new system against conventional methods.

Amount of Wood per Man per Shift
Solid Cubic Meters

Pocket Grinders	Chain Grinders conventional feeding	Chain Grinders automatic feeding
12 m.³	21-32 m.³	150 m.³

During planning stages for this new system, it was thought that poor regulation and non-uniform pulp quality might result. However, it has been shown that regulation has been improved by the automatic wood feeding system. Also, by using pitless grinding, regulation has been further improved.

The new and rebuilt groundwood mills have now been in operation for about three years. At the beginning, it was necessary to change certain details, but since then, the machinery has been operating satisfactorily. Cost of maintenance has been extremely low.

The development of this plant was carried out in cooperation with Einar Eriksson & Co., engineering firm of Kungsgatan 32, Stockholm, Sweden, who have patent and manufacturing rights for the new wood feeding system.

Effect of Machine Drives, Furnish Characteristics and Cleaning Methods Discussed at Huyck Seminar

At a recent Huyck field service engineers' conference held in Rensselaer, Huyck's engineers, located throughout the country, met to hear not only reports of developments in felt manufacture but also talks by guest speakers who gave information on other aspects of felt operation.

Members of Huyck's development department reported on new construction and finishing techniques that were proving outstanding in improving finish and reducing hair shedding. New duplex weaves, designed for finer finish were discussed together with the new fiber-locked felt construction which minimizes hair shedding and gives increased nap retention.

The favorable results obtained to date with the new natural color Huy-5 treatment were highlighted in the chemical research department's presentation. This treatment was reported to have proven effective on high brightness board and market pulp machines and its use is broadening in other fields. Laboratory progress on the development of new and better chemical treatments was discussed.

Seminar speakers discuss theme of Field Service meeting. Left to right: George Shaad, General Electric's senior engineer for paper machine drives; Irving H. Peters, manager of field service; H. J. Abernathy, experienced papermaker; John P. LaRue, assistant manager of field service; Lee J. Heath, Chemical Pump and Equipment Corp.

Effect of Furnish on Felts

H. J. Abernathy, an authority on paperboard manufacture, spoke on the effect of machine and furnish characteristics on sheet finish. He described his "dream" cylinder machine as having alternate cylinders and the suction drum roll driven with two or more primary presses (at least one suction primary). He stated that drives would be used on top and bottom main press rolls and on all bottom primary rolls. He discussed the importance of correct vat and cylinder design and stressed its effect on finish.

Drawing upon his 30 years of experience with Colorado Paper Board (now Central Fiber), Continental Paper Co., National Folding Box and Columbia Boxboard, he outlined the functions that the various types of furnish perform in the finished multiply sheet. Furnishes used in white patent coated, chip, test liner and other board grades were stated to have a pronounced effect on board finish and the amount of cleaning required. For example, a new filler with bottom liner was described as necessary for white patent coated to produce the levelness, finish and bender required by the grade. Because such a stock contains a high prcentage of fines and is relatively "slow" as compared with corrugated waste used in test liner, the fines fill felts up faster. Additional cleaning is therefore necessary to make the felts function properly. By relating stock properties to other sheet characteristics such as caliper, tear strength and odor, he developed the basic critria used by papermakers in meeting finished sheet requirements.

Machine Drives and Felts

George Shaad, General Electric's senior engineer for paper machine drives, discussed in detail the effect of machine drives on felt performance and life. He described the economic and technical characteristics of turbine and d.c. motor operated line shaft and variable speed a.c. motor drives.

In selecting machine drives he pointed out that the following points must be considered:

1. Availability of steam
2. Operating speed range
3. Cost of drives
4. Availability of a technical staff

to operate and maintain drive equipment.

Where flexibility is required on high-speed machines, such as Yankees and suction transfers, the variable a.c. motor drives have been heavily favored. Not only did he explain the functions and advantages of helper drives in improving felt operating characteristics, but he gave graphic illustrations of actual paper machine situations he has encountered in his long association with the paper industry.

Mr. Shaad emphasized that too much power transfer can be just as troublesome as too little and pointed out the importance of an accurate and complete machine power balance. Too little transfer of power (decrease of power transfer in machine direction) was pinpointed as causing the felt to pucker when entering a nip and too much power transfer (increase of power transfer in machine direction) as resulting in slippage between the felt and the driving roll. Both conditions cause premature felt wear due to surface abrasion and internal friction. He also discussed the varying abilities of different types of roll surfaces to transfer power and the resultant effects on felts.

Control of Cleaning Solutions

The importance of felt cleaning, both continuous and intermittent, has made it necessary to have a complete understanding of the need for accurate pumping of cleaning and other solutions. Lee J. Heath of Chemical Pump and Equipment Corp., discussed the requirements of several systems in common use and stressed the importance of accurate metering of pre-determined chemical quantities in paper mills. Despite the considerable initial investment, such metering equipment usually pays for itself many times with the savings in chemicals and the better cleaning realized. The versatility of these pumps in delivering a variety of materials over a wide pumping range has further increased their usefulness in the paper industry.

The discussion following each of the presentations provided ample opportunity for questions and answers and brought out many additional points of interest. As before, this meeting was well received and plans have already been made for one later this year. It gave the Huyck Field Service Engineers an opportunity to exchange thoughts and ideas with a group experienced in serving the paper industry and it provided information on the latest developments and improvements in felts being made available to papermakers.

Prices of Fibers

MARKET WOOD PULP

SECOND QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§390.00/ —	§380.00/ —	§390.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		$137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	§155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED APR. 23

Grade	Atlanta	Memphis	Dallas	Los Angeles
	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$ — /6.75	$7.50/7.40
3	$7.50/6.50	$7.50/7.00	6.25/5.75	7.15/6.90
4	6.50/5.50	6.50/6.00	5.50/5.00	6.50/6.25
5	5.50/4.50	5.25/5.00	4.75/4.00	5.75/5.40
6	4.50/4.00	4.75/4.50	4.00/3.75	4.50/4.00
7	4.00/3.00	4.00/3.00	3.25/2.75	3.00/2.75

WASTE PAPER MARKET

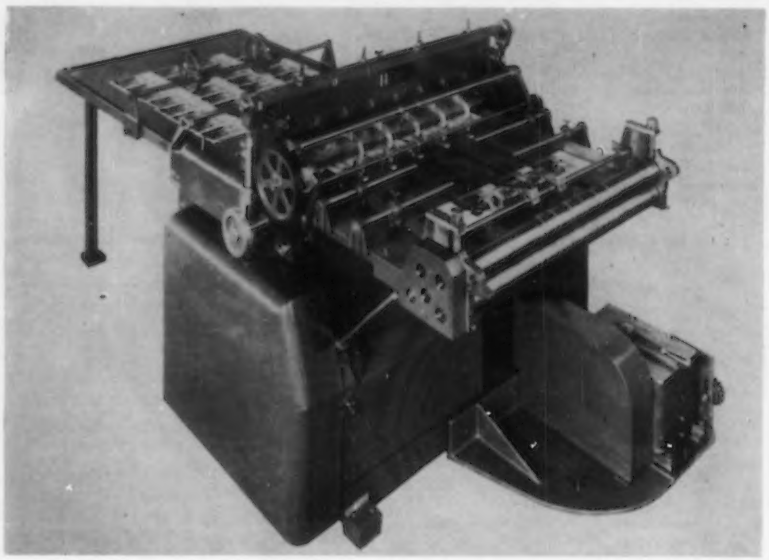
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Apr. 27	Apr. 27	Apr. 27	Apr. 27
No. 1 Mixed Paper	$ 10.00/ 11.00	10.00/ 12.00	9.00/ —	14.00/ —
No. 1 News	17.00/ 18.00	18.00/ —	18.00/ —	18.00/ —
Overissue News (Lg. size)	16.00/ 18.00	15.00/ 17.00	25.00/ —	20.00/ —
Mill Wrappers	19.00/ 22.00	16.00/ 18.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	23.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	35.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	37.50/ —	35.00/ —
(Semi-chem. medium)	47.50/ 50.00	45.00/ 50.00	47.50/ 50.00	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	62.50/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	60.00/ 65.00	48.50/ 55.00	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	— / —	— / —
Hd. White Shvs.	90.00/ 95.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	105.00/110.00	105.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	57.50/ 60.00	57.50/ 60.00	52.50/ —	40.00/ —
Manila Tab. Cards	80.00/ 82.50	80.00/ 82.50	75.00/ —	85.00/ —
No. 1 Col. Ledger	35.00/ 47.50	37.50/ 42.50	47.50/ —	37.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	57.50/ —	55.00/ —
Mixed Book & Mag.†	25.00/ 28.00	— / —	17.00/ —	— / —
No. 1 Books‡	30.00/ 32.50	24.00/ 26.00	35.00/ —	17.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

NEW EQUIPMENT & SUPPLIES



Front Cut Trimmer Attaches to Stitcher

A McCain trimmer that automatically makes the "front" or "face" cut on ganged-up signatures to 39 inches in length, is now available from The Dexter Co., division of Miehle-Goss-Dexter, Inc., Chicago 8, Ill. Known as the Automatic Front Cut Trimmer, it has a trim range from 14 x 39 inches down to 3 x 12 inches and in thicknesses to ⅜ inch. This machine, said to have increased production up to 90 per cent in one installation, with no increase in the size of the stitcher crew, simplifies the front cut operation by making it a by-product of the stitching operation.

No special skills are needed to set up and operate the machine, reports the company. Only one adjustment changes the back depth. Infeed side guides are adjusted for signature length. The work is automatically delivered from the stitcher conveyor, backbone forward, and a chain infeed brings it forward against the back stops. A 15-inch flattening plate removes excess air from the signature; the clamp holds the books throughout the cutting cycle.

The trimmer can be attached to most stitchers, and a single motor operates both stitcher and trimmer, assuring synchronization. A two-speed drive can run the trimmer at half speed when the stitcher is set up for double stroking.

Lithium-base Lubricant is Multi-Purpose

A high-film-strength, lithium base product, Keystone No. 88 multi purpose lubricant, is unaffected by either short or long exposure to damp atmospheres or direct contact with water. In addition, No. 88 has absorptive properties and is smooth, non-fibrous, homogeneous and odorless.

Having an operating temperature range of from 0 to 275°F., and a melting point close to 400°F., Keystone No. 88 multi-purpose lubricant does not thin out under heat or pressure. It resists the erosive effects of hot water, steam and hot air. It is also unaffected by mild acid and alkali solutions.

This lubricant is made in six densities, medium, light, X, XX, XXX and XXXX light, to give it applications in 90 per cent of all ball, roller, plain and needle bearing installations and on rotating and sliding surfaces. It is available in 1-lb. and 7-lb. cans, 25-lb. pails, 120-lb. (approx.) kegs, and 400-lb. (approx.) drums. Cases contain twelve 1-lb. or six 7-lb. cans. For additional information, write to Keystone Lubricating Co., 3100 North 21st Street, Philadelphia 32, Pa.

Light-Wall Fittings For Non-Critical Piping

Tube turns Division of Chemestron Corp. has introduced a line of light-wall stainless steel fittings and flanges designed for nominal-temperature, low-pressure non-critical process piping that will be stocked in ½-inch through 4 inch sizes, schedule 5S and 10S.

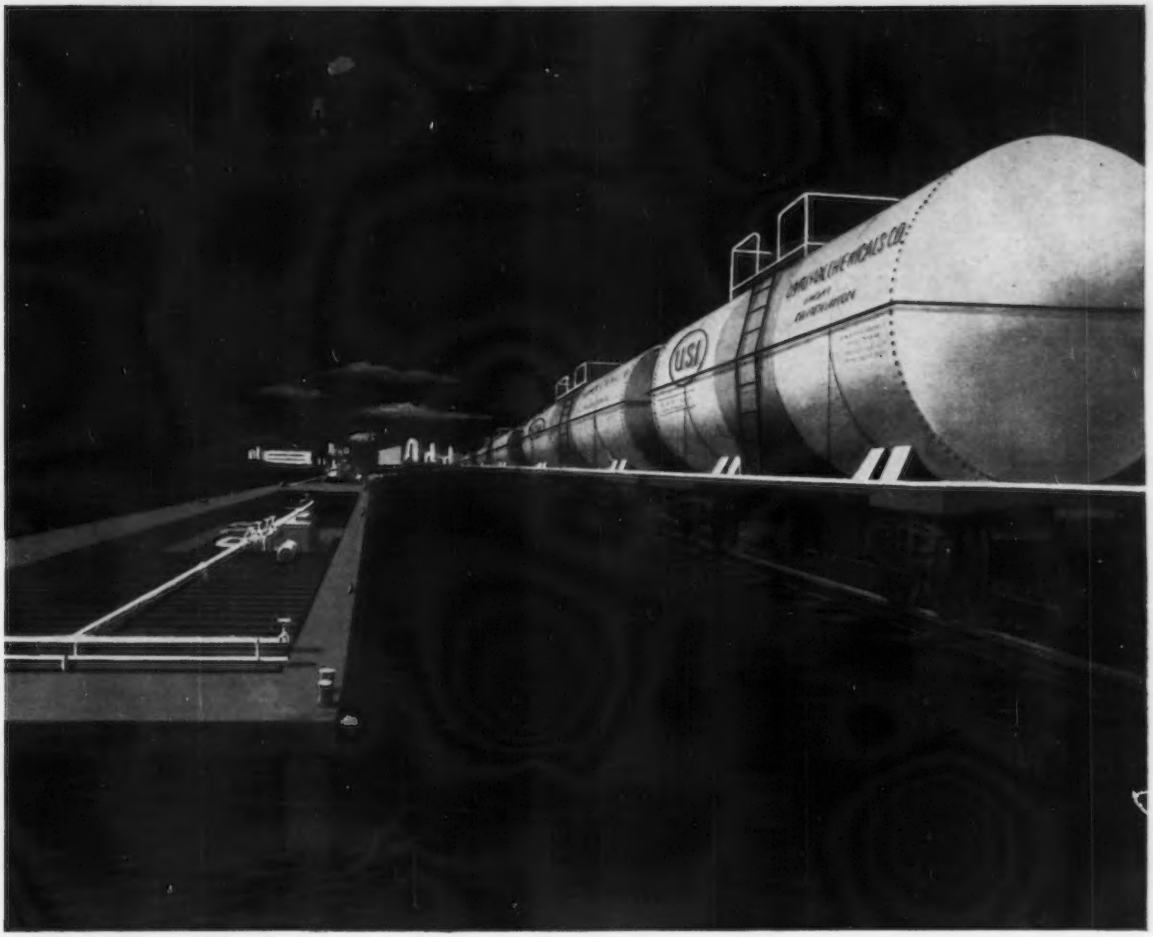
A special feature of Tube Turns' Pipe-Mate line is a swivel-type carbon steel insert flange especially designed for ease of alignment. It has a stainless steel insert at the bore into which pipe or fitting can be expanded, then the carbon steel portion is simply rotated to line up the bolt holes and tightened. No welding is involved. Long tangents will permit easy alignment of fittings and pipe and allow clearance for fabrication of completely flanged elbows, returns, tees and crosses.

Another feature is a reversible fitting called the "Plug-R-Cap." Butt-welded in regular position it is a cap.

Reversed, it can be fillet-welded to act as a plug.

Pipe-Mate stainless steel fittings, Tube Turns said, can be butt-welded in the normal manner or, with the use of an alignment connector or sleeve they can easily be filled-welded or brazed. Expanders and alignment connectors will both be included in the line, in addition to 45° and 90° elbows, returns, eccentric and concentric reducers, tees and crosses, reducing tees, caps, stub ends, flared nipples and flanges.

(Continued on page 52)



ANNOUNCING...

U.S.I. CHLORINE and CAUSTIC SODA

. . . from Huntsville, Alabama

Two U.S.I. plants, conveniently located at Huntsville, Alabama, can now supply your chlorine and caustic needs.

Make U.S.I. *your* preferred supplier of these paper chemicals. Here are some profitable reasons why you should:

- Your orders will arrive at a U.S.I. plant almost as soon as they leave your own—through U.S.I.'s automated order-handling system based on an extensive teletype network.
- Your orders will be delivered rapidly and without complications — because of the convenience of the Huntsville location and the efficiency of the order-handling system.
- You'll be working with a 50-year old chemical manufacturing company with a reputation of service to its customers throughout that half century.
- You'll be working with a large and continually-growing company that today has warehouses, plants and sales offices in 27 locations across the nation.

Liquid chlorine is shipped from Huntsville in tank cars. Commercial grade 50% liquid caustic soda is shipped in tank cars and barges. Other U.S.I. plants supply sodium peroxide, ammonia and polyethylene.

The coupon below provides a convenient way to find out more about U.S.I.'s supply and service capabilities. Why not drop it in the mail now while you think of it?

U. S. Industrial Chemicals Co., 99 Park Ave., New York 16, N.Y.
We'd like to know more about U.S.I.

- ☐ Send brochure "National Distillers Expands in the Chemical Industry"
- ☐ Send information on your Automated Order Handling System
- ☐ Have a salesman call for an appointment to discuss chlorine and caustic soda
- ☐ Put me on your mailing list

Name_____

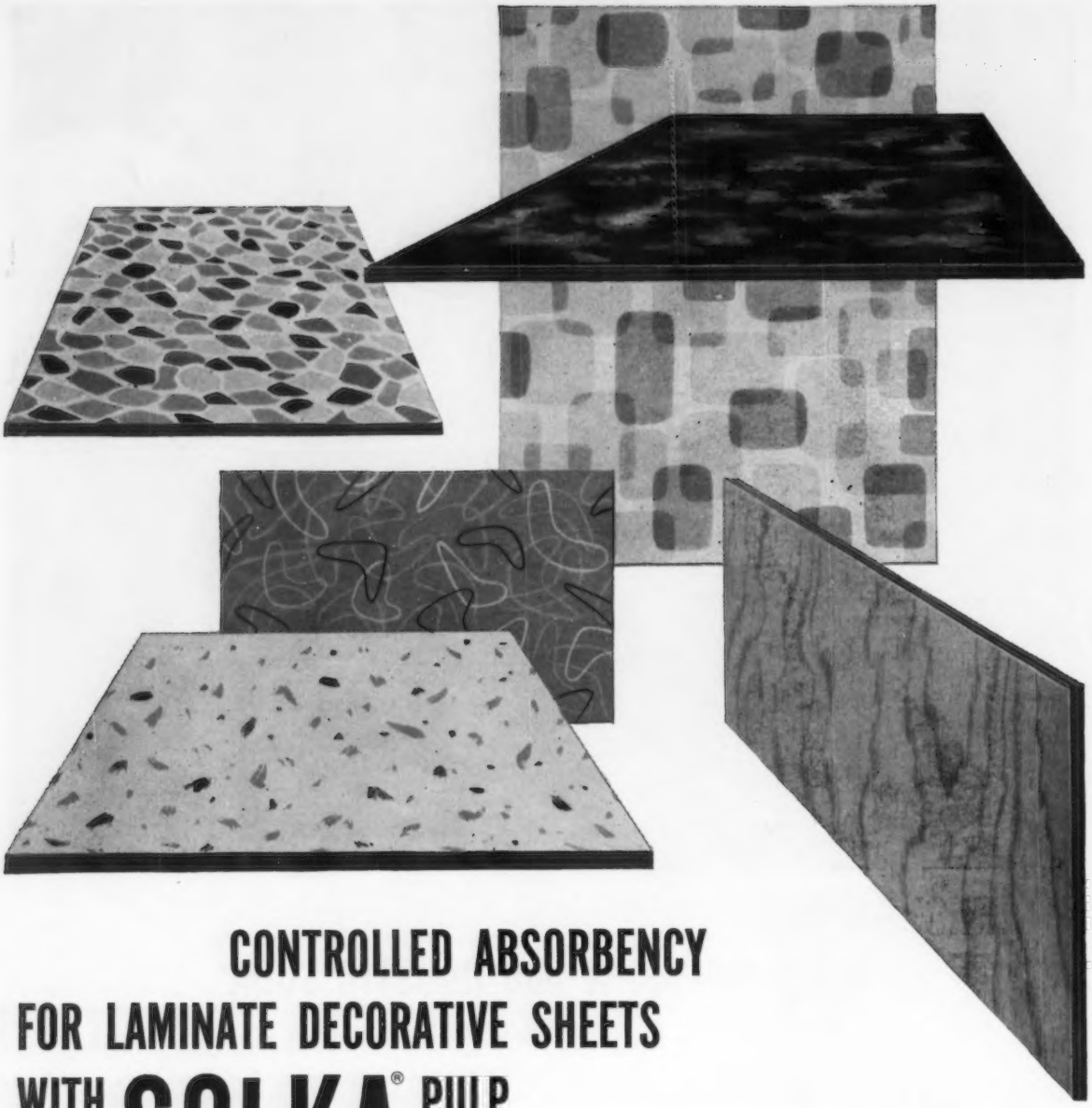
Title_____

Company_____

Address_____

City and State_____

U.S.I INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corp.
99 Park Ave., New York 16, N. Y.
Branches in principal cities



CONTROLLED ABSORBENCY FOR LAMINATE DECORATIVE SHEETS WITH SOLKA® PULP

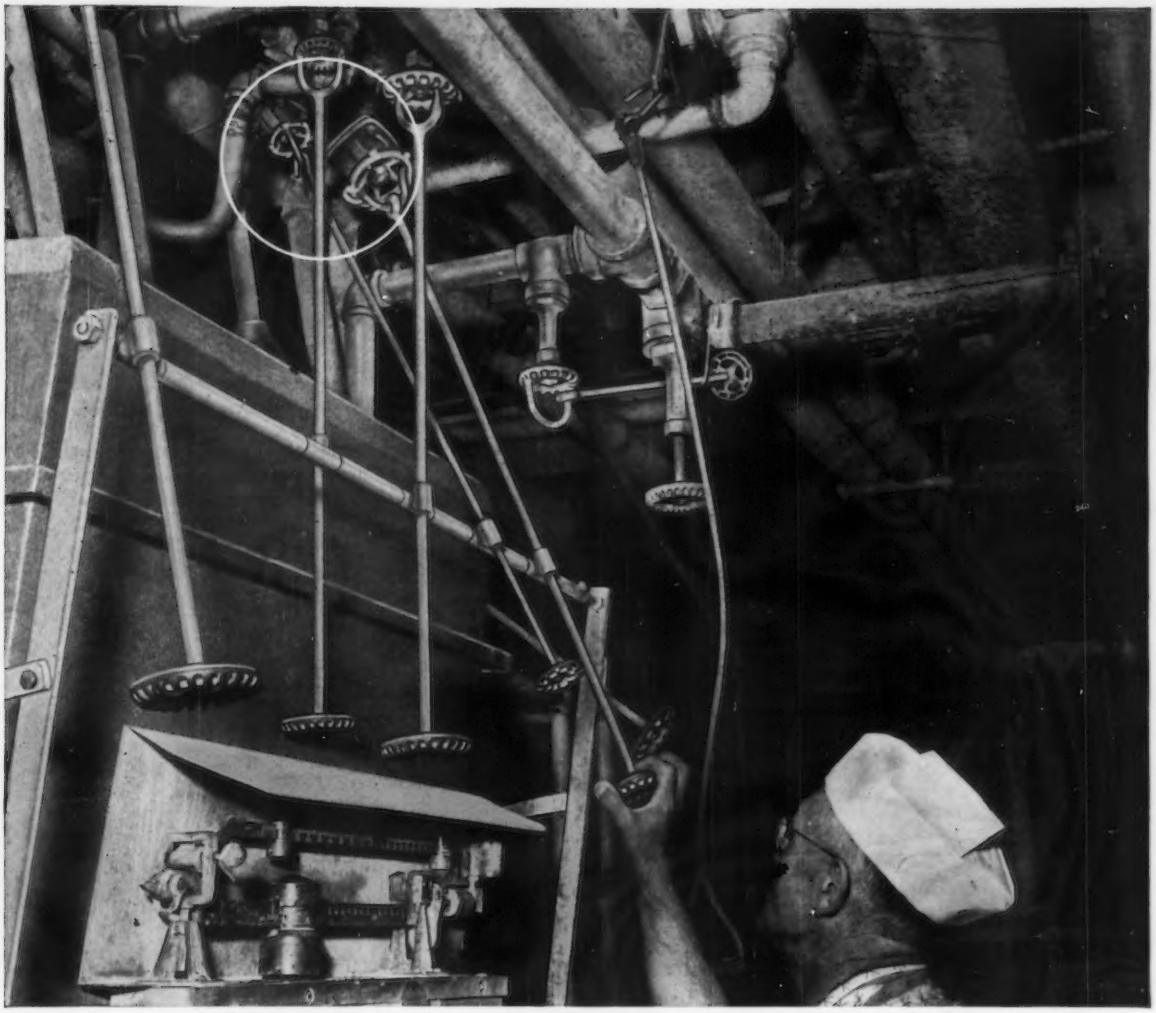
Manufacturers of decorative sheets for high pressure laminates find Solka Pulp ideal for the purpose. Paper made from these specially blended Solka fibres has an excellent printing surface and high dimensional stability. And of utmost importance, this paper has a uniform absorbency rate and capacity for saturants.

In addition to the standard grades, Solka Pulps can be tailor-made to give specific properties to papers designed for particular applications.

Brown Company's sixty years of pulp making experience is backed by top-flight research and technical personnel. This, plus modern manufacturing facilities, can help you in solving your problems. Write our Boston office today. Address Department PB-5.

Another Quality Product of BROWN COMPANY

150 Causeway Street, Boston 14, Mass.
Mills: Berlin and Gorham, New Hampshire



Mill solves diaphragm rupture problem on clay coating—with Crane Valves

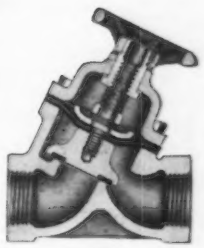
This midwest paper mill was plagued by continuing failure of diaphragm valves handling abrasive clay coating mixtures at 112° F. In closing these ordinary valves, operators had to force the diaphragms against a weir to get tight closure on the clay particles. As a result, the diaphragms would deteriorate and rupture quickly.

In an effort to cut maintenance and replacement costs, the mill changed to Crane No. 1610 diaphragm valves with neoprene diaphragm and disc insert.

In these modern Y-pattern Crane valves, the sole function of the diaphragm is to seal off the bonnet. Valve closure is made by the separate disc; its soft neoprene insert absorbing any solid particles or foreign matter present. No extra force is needed for tight shutoff.

Although operated on an average of 35 times daily, these Crane diaphragm valves, *five years after installation*, still operate perfectly. Not one cent has been spent for repairs or diaphragm replacements. Valve closure, with extension stems, is always easy and tight.

Where can Crane improved diaphragm valves do a better job for you? For helpful recommendations see your Crane Representative, or write to the address below.



Note separate disc in Crane diaphragm valves. Diaphragm serves only as bonnet seal. Wide choice of body and trim materials, body linings. Sizes ½ in. to 14 in. Screwed or flanged.

CRANE VALVES & FITTINGS

PIPE • PLUMBING • HEATING • AIR CONDITIONING

Since 1855—Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

QUICK FACTS

ON EXTREMULTUS BELTING

Performance-proven in over 500 pulp and paper mills

1 Won't slip or stretch. Outlasts all other belts on toughest drives. Often costs less to start with!

2 Reduces down-time and maintenance costs; improves draw control and drive efficiency.

3 Easy 2 hr. splice, completely reliable . . . and remember, no substitute can begin to compare.

Write today for interesting, descriptive catalog.

EXTREMULTUS, INCORPORATED

25-11 40TH AVENUE
LONG ISLAND CITY
NEW YORK

NEW EQUIPMENT

(Continued from page 48)

Chemical Feed Pump Has Teflon Diaphragm

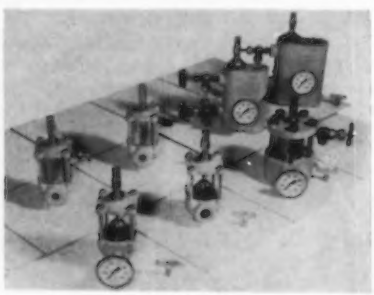
Fischer & Porter Co. has introduced a chemical solution feed pump that features a hydraulically balanced Teflon slack diaphragm. The dia-

phragm is not connected to the plunger and is unconditionally guaranteed for the life of the pump. The rate of the pump, which operates at 70 strokes per minute approaching continuous flow, can be manually adjusted during operation or while shut down. The pump has a capacity up to 65 gallons every 24 hours, an operating pressure up to 125 p.s.i., and a maximum continuous temperature rating of 100°F. It will handle alum, acids, hypochlorites, polyphosphates, soda ash, fluorides, and similar materials. For more information, write Fischer & Porter Co., 28 Jacksonville Road, Hatboro, Pa.

Needlepoint Orifices Offer Micro-Adjustment

A line of micro-adjustable orifices has been introduced by Stickle Steam Specialties Co., 2215 Valley Ave., Indianapolis 18, Ind.

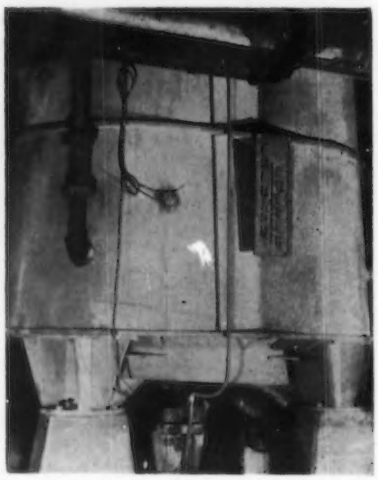
The orifices are designed to provide more accurate drainage of condensate from heating and processing units operating at pressures between 5 and 400 p.s.i. Because they require virtually no maintenance and offer precise adjustment for minimum steam loss, orifices are frequently used to replace hard-to-maintain steam traps, states Stickle.



An exclusive needlepoint valve permits minute adjustment to regulate flow of condensate. To prevent unauthorized changes, adjustment requires a special key. All models are available with thermometer to show temperature of condensate leaving the processing unit. This temperature corresponds very closely to the temperature in the unit iself. On low pressure models, self-cleaning sight glasses permit visible operation of the valve and a sight check on the flow of condensate. The orifices are offered in seven styles and six sizes to fit ½-inch to 2-inch pipe.

Consistency Pulper Cycles in 30 Minutes

The Emerson Manufacturing Co., division of John W. Bolton & Sons, Inc., Lawrence, Mass., introduces the



Triple Attack Pulper featuring a tub design engineered to accomplish complete, uniform pulping at 6 to 12 per cent consistency in average change-to-dump cycles of from 20 to 30 minutes, depending upon the type of furnish and the degree of defibering required.

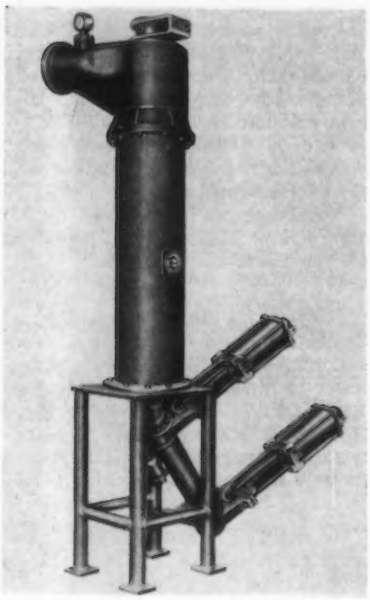
Utilizing a minimum of floor space, the tub contains four lobe-shaped sections with sides tapering inward toward the top. Action of the impellor (attack no. 1) forces the stock out and up the sides (attack no. 2) of each lobed section, which directs the stream back to the impellor blades allowing no "dead spots" for undefibered stock to escape. The four resulting streams of stock form an interweaving, overlapping pattern at

the vortex to assure vigorous defibering action on the stock (attack no. 3). This action is said to accelerate defibering during the pulping cycle and makes fullest use of the horsepower normally required to circulate the stock..

Emerson Pulpers are made in five sizes. They range from 100- to 5000-pound units, with a capacity range of from 9 to 180 tons per day at standard rating of six per cent consistency and are available in stainless, carbon steel and tile.

Stock Cleaner Utilizes Vortexing Principle

A free-vortex type, non-plugging, high velocity separator for removing high and medium specific gravity re-



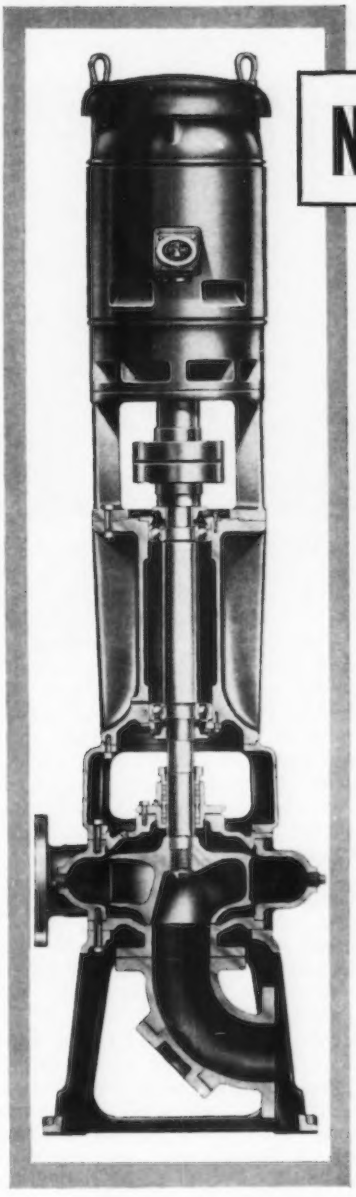
jects from slushed paper stock has been recently introduced by The Black-Clawson Co., Shartle Division, Middletown, Ohio.

Named the "Liquid Cyclone" it is entirely self-contained and totally enclosed. A unit to handle 50 tons per day of stock occupies less than seven square feet of floor space.

Rapid acceleration of the stock as it enters the unit tangentially at the top develops high centrifugal force as it spirals downward towards the apex end of the cone, forcing higher specific gravity material towards the wall of the cone where it is carried down and out of the unit. Stock movement near the apex forms a cyclonic column of clean stock which discharges from the top of the unit. Rejected material is passed through the lower chamber, washed free of

For higher pumping efficiency

of solids in suspension!



NEW

Fairbanks-Morse

5440A Non-Clog Pumps

Ideal for pumping unscreened liquids with large solids in suspension

- industrial wastes
- sanitary sewage disposal
- industrial processes

Here is your answer to higher efficiencies wherever you are pumping solids in suspension!

All-new Fairbanks-Morse 5440A Non-Clog Pumps feature quick, easy convertibility between any of the many vertical and horizontal types. Power requirements of the pump are always perfectly matched to the electrical and mechanical components. Precision-machined centering fits assure accurate alignment. Exclusive F-M bladeless impeller design minimizes maintenance by preventing clogging from solids and stringy material. The 5440A is only one of many F-M solids-handling pumps designed to meet a broad range of requirements. For information, write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

Ask for new 5440A BULLETIN!

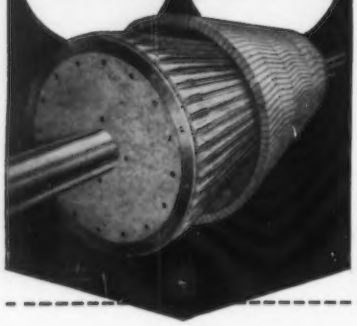
FAIRBANKS-MORSE

a name worth remembering when you want the BEST

ELECTRIC MOTORS • DIESEL, DUAL FUEL AND GAS ENGINES • PUMPS
COMPRESSORS • GENERATORS • MAGNETOS • HOME WATER SYSTEMS

IDEAL COMBINATION FOR ANY

Conical Refiner



Jones Adapta-Plug

The completely bandless plug for *all* Jordans, the Jones Adapta-Plug is also the strongest, most adaptable, most economical plug ever made.

This revolutionary advance, exclusive with Jones, not only holds bars more securely, reduces slot wear and corrosion, but also cuts hours from the job of stripping and filling.

Before you replace another Jordan plug — ask your Jones representative about Adapta-Plug — or write us direct.

Jones FULBAR SHELL FILLINGS

Fulbar Shell Fillings eliminate keys and wedges. One piece construction fits shell body of any Jordan, simplifies handling, cuts installation time. And the patented No-wave pattern — also exclusive with Jones — has no sharp bar-ends to form strings or lumps.

For improved quality, more economical, trouble-free operation — make your next Jordan filling a FULBAR.

Rigid, one-piece FULBAR easily accommodates to inequalities in shell body of old, worn Jordans — is simpler to install, easier to grind in.

E. D. JONES CORPORATION
Pittsfield, Mass.
In Canada: The Alexander Fleck, Ltd., Ottawa

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

fibers and ejected from the system. This operation can be either automatic or manual.

Liquid Cylones are available for either high or low pressure separation, with individual unit sizes designed for 25 and 50 tons per day capacity. For higher tonnages multiple units would be recommended.

Lift-Trucks Have Low Headroom Design

For those handling operations where a high degree of maneuverability is vital, electric-powered, 2000-lb. and 3000-lb.-capacity industrial trucks have been developed by The Elwell-Parker Co., 4205 St. Clair Ave., Cleveland 3, Ohio.

Designated the F-48T2 and F-48T3 models, they feature a special low height seat designed to keep the operator's head below the top of the uprights. The short wheelbase, only 36 inches, enables the trucks to make a right angle turn in a 58-inch-wide aisle; also, they can right angle-stack in a 109¼-inch-wide aisle, emphasize the manufacturers.

Physical dimensions: 97⅝-inch overall length with 36-inch long forks; overall width of 38½ inches; height of the operator's seat above the floor, 34½ inches; upright height is 68 inches with either simple lift providing 17 inches of initial lift or duplex lift providing 50 inches of initial lift before the overall height of the truck increases. Total lifting height is 111 inches. Built to accommodate a 30- or 36-volt lead acid battery of 500 ampere-hours capacity, the trucks weigh approximately 5,500 pounds with power. Both models have hydraulic lifts and tilts, specially-designed caster type steering axels, and worm gear drive reduction units. Travel speeds range up to 6 m.p.h. and lift speeds up to 45 f.p.m.

OBITUARIES

Frank I. Peterson, 80, died at Greenwich, Conn., April 11. Widely known specialist in the manufacture of facial and other tissue grades of paper, Mr. Peterson began his long career in the paper industry in Sweden, where he was born.

He was first employed at Fengersfors Paper Mills and later worked for several other Scandinavian paper companies. In 1911 he came to Canada as the first paper mill superintendent of the Wayagamack kraft mill, which is now Consolidated Paper Corp. at Three Rivers, Quebec.

Moving from Canada to the United States at the end of World War I, Mr. Peterson came to American Writing Paper Corp., Holyoke, Mass. Subsequently he concerned himself mainly with tissue manufacture and was associated with several of the leading producers in the United States.

Mr. Peterson is survived by his son, Frank T. Peterson, president of The Black-Clawson Co.

John B. Calkin, 55, president of Calkin & Bayley, Inc., industrial consultants, died of a cerebral hemorrhage in St. Vincent's Hospital, New York City.

Mr. Calkin was a former coordinator of research of the Union Bag and Paper Corp..

Franklin F. Frothingham died very suddenly on February 21st, a year after his retirement from a lifetime of active and effective service to Bird Machine Co.

Mr. Frothingham had served for many years as manager of the company's mid-western office at Evanston, Ill., before coming to the home office as vice president and manager of pulp and paper machinery sales. He was at one time chairman of the Association of Pulp and Paper Machinery Manufacturers.

C. A. Potter, 54, vice president and general manager of B. F. Perkins & Son, Inc., Holyoke, Mass., died suddenly March 30 at Northampton, Mass. Mr. Potter started with the company in 1926 as a draftsman in the engineering department, resigning in 1944 when he was chief engineer. He rejoined the company in 1953 as general manager.

NEWS OF SUPPLIERS

J. A. MacLean

J. E. Otis, Jr.

Dodge Manufacturing Corp., Mishawaka, Ind., has elected J. Allan MacLean president, effective June 1st, succeeding Joseph E. Otis, Jr., who has been elected chairman of the corporation's board of directors, effective the same date.

Mr. MacLean comes to Dodge from Bendix Aviation Corp., South Bend, where he has been group executive and general manager of Bendix Products Division.

Mr. Otis became president November 1st, 1939, when he came to Dodge from the presidency of Stewart-Warner Corp., Chicago.

The Glidden Co. Chemicals-Pigments-Metals Div. Announcement of major organizational changes has been made by George M. Halsey, vice president in charge of the division.

Ralph B. Quelos was named general sales manager for the division and James C. Rankin was appointed sales manager of national accounts. Mr. Quelos is a veteran of 25 years with the company and since 1955 has served as Eastern sales manager for the Chemicals-Pigments-Metals Division. Mr. Rankin joined Glidden in 1942 and has served the division as central sales manager since 1955. He will be headquartered in St. Louis, Mo., and Mr. Quelos will be located at the division's central sales headquarters at Baltimore.

William P. Weber has become district sales manager for the division and will be responsible for sales in New England, eastern New York State, New Jersey and eastern Pennsylvania. He will be headquartered in New York City.

George H. McElroy, who has been a sales representative for the Chemicals-Pigments-Division for 22 years, was appointed district sales manager with headquarters in Cleveland, Ohio. His sales territory will include Ohio, Indiana, Michigan and Kentucky, as well as the Western portions of New York and Pennsylvania.

C. Russel Hale, who has been a sales representative in the New Jersey area, has become district sales manager in the Chicago area. Headquartered at the division's metal plant at Hammond, Ind., Mr. Hale will be responsible for sales in the Midwestern states.

William J. Barnett will continue as Southern sales manager with headquarters in Atlanta, Ga. His territory has been expanded to include North Carolina, Virginia, and the eastern portion of Maryland.

Morningstar-Paisley has begun production of polyvinyl acetate emulsions at its recently completed plant in Clifton, N. J., according to an announcement by Murray Stempel, executive vice president. In the same announcement it was also revealed that the company's Chicago plant has increased its output of these emulsions by 50 per cent. As a result, total production of these

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The incoming tide of business is stronger. The time has come to put on sail. Water is deeper over the shoals and you can square away for the port of profit once more if—
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materials has been doubled. Mr. Stempel states that the additional facilities were made necessary by the increasing use of polyvinyl acetate emulsions in the adhesives and coatings compounded by Morningstar.

The Waterbury Felt Co., Skaneateles Falls, N. Y., manufacturer of papermakers' felt, has appointed Vernon L. Tipka as the West Coast representative.

Mr. Tipka has been connected with the pulp and paper industry for over 30 years in various capacities both in operations and executive management. His address is 415 Jackson St., Oregon City, Ore.

He replaces William A. Kelly of Portland, Ore., who retired Dec. 31st 1958, after 25 years association with The Waterbury Felt Co.

Walworth Co. has announced the appointment of new officers and board officials.

The company's new president is a 38-year-old, Yale-trained, mechanical engineer, John C. Wallace. Mr. Wallace has been with Walworth for two years, during which he has held three vice-presidential positions. The most recent of these was vice president and general manager. A navy veteran of World War II, he is considered an authority on casting and machining processes.

Walworth's new vice president and general sales manager is a 34-year-old, M.I.T. engineer, Harold Brown. His broad experience includes six years of naval service in World War II, and again in the Korean conflict. He was chief of public relations for Navy Far East Forces, and liaison with Diplomatic Services abroad.

Announcement has also been made of the appointment of Fred W. Belz, former Walworth president, to the position of chairman of the board. Mr. Belz has been with the company for 38 years. During this period, he has been Walworth's comptroller, treasurer, vice president and executive vice president.

The company's Executive Committee has a new chairman, Mr. David R. Pokross, who has served for many years on the committee.

Krofta Engineering Corp., Lenox, Mass., has appointed Albert O. Dyson sales manager.

For the past ten years Mr. Dyson has been manager of the pulp and paper division of Nichols Engineering and Research Corp., New York, N. Y. He is a graduate of the University of Maine.

Nopco Chemical Co., Newark, N. J., said it has entered into an agreement to acquire for an undisclosed sum of cash Jacques Wolf & Co., privately owned Clifton, N. J. maker of chemicals for the textile, paper and soap industries.

Ralph Wechsler, president of Nopco, said the transaction should be legally terminated April 30. He said Jacques Wolf will be operated as a Nopco subsidiary.

G. F. Schuning

J. O. Ross Engineering announces that George F. Schuning, Jr., sales engineer for its Engineering Division Midland-Ross Corp., has been awarded an Alfred P. Sloan Fellowship in executive development, and in June will begin a 12-month study of the fundamentals of industrial management at M.I.T. in Cambridge, Mass.

M. H. Cutler

Stone & Webster Engineering Corp. has named M. H. Cutler engineering manager.

Mr. Cutler, formerly assistant engineering manager, succeeds Fred W. Argue who was recently named executive vice president of the 70-year-old New York and Boston corporation.

In a series of other executive shifts, Thomas A. Fearnside, chief mechanical engineer, was made assistant engineering manager. Floyd F. Dedrick, assistant chief mechanical engineer, was named to succeed Mr. Fearnside.

Hudson Sharp Machine Co., Green Bay, moved its New York City offices on April 1st from 55 West 42nd Street to new headquarters at 161 East 42nd Street.

Serving the territory from the new office, is sales engineer "Bart" Loskot, in charge of Hudson Sharp converting and printing press lines

and sales engineer "Bob" Layne, in charge of Hudson Sharp Campbell Wrappers.

The company's new offices are now within the general offices of the FMC International Division of Food Machinery and Chemical Corp., of which Hudson Sharp is a subsidiary company.

Hooker Chemical Co. Henry B. Puff has been promoted to assistant product manager — resins for the Durez Plastics Division, North Tonawanda, N. Y., according to Alfred W. Hanmer Jr., Division sales manager. Mr. Hanmer also announced appointment of Edwin E. Woodman as district sales manager of the Chicago office of the Division, to succeed Mr. Puff.

Bowling League Dinner Announced

Each year the Paper Industry Bowling League, composed of mills, agents and merchants, in the metropolitan New York area, holds an Annual Bowling Dinner. The dinner this year will be on Tuesday, May 12th, 1959, at Toots Shore Restaurant, 51 West 51st Street, N. Y.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Mar. 21	Mar. 28	Apr. 4	Apr. 11	Apr. 18
1959	94.0	92.9r	90.3r	95.0r	96.4
	Mar. 22	Mar. 29	Apr. 5	Apr. 12	Apr. 19
1958	91.0	90.5	89.8	87.8	87.2

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8‡	89.2‡	93.1‡	—	—	—	—	—	—	—	—	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	96.0	94.4	93.9	95.4	101.2	95.8	87.7	90.8
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Mar. 21	Mar. 28	Apr. 4	Apr. 11	Apr. 18
1959	94	95	89	94	95
	Mar. 22	Mar. 29	Apr. 5	Apr. 12	Apr. 19
1958	88	86	88	82	87

COMPARATIVE MONTHLY SUMMARIES

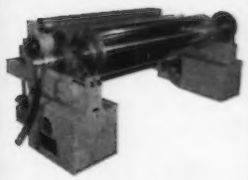
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	86	93	95	—	—	—	—	—	—	—	—	—	—
1958	80	86	88	84	84	86	76	93	90	95	92	81	86

† *Percents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

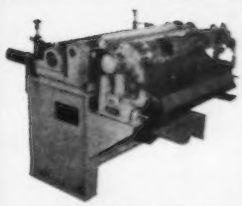
SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Apr. 18, 1959	LAST WEEK ENDING Apr. 11, 1959	CUMULATIVE TO DATE Jan. 1 to Apr. 18 inc., 1959
% Activity	95%	94%	92%
TOTAL	323,387	312,695	4,585,019
Liner	115,332	109,372	1,561,651
Corrugating Material	48,660	46,419	690,551
Chip & Filler Board	6,281	4,459	76,286
Total Containerboard	170,273	160,250	2,328,488
Folding	55,327	60,146	858,709
Set-Up	11,932	12,386	178,524
Special Food Board	28,386	26,556	423,208
Other	57,469	63,357	796,090
Total Boxboard	153,114	152,445	2,256,531
TOTAL ORDERS			
Received	287,889	296,719	
Unfilled End of Week	448,740	482,117	

Dilts
COATERS



PL-600 POLYETHYLENE



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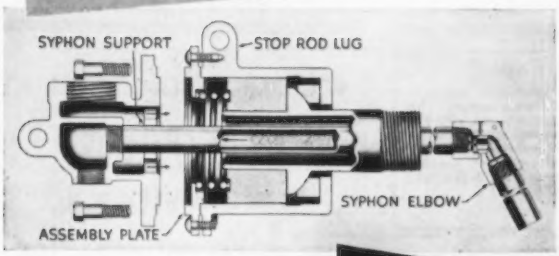

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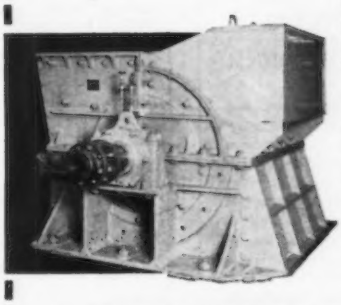

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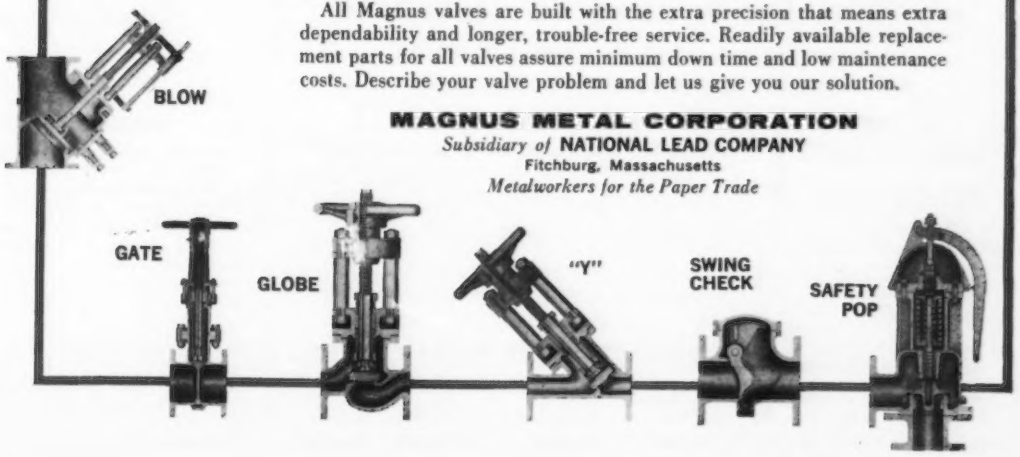

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2—63″ face x 36″ dia w/rubber couches
1—72″ face x 48″ dia
1—73″ face x 48″ dia
1—92″ face x 30″ dia
2—104″ face x 36″ dia
1—107″ face x 48″ dia; A-F Brng
2—111″ face x 36″ dia; A-F Brng
1—132″ face x 36″ dia; A-F Brng
1—132″ face x 42″ dia; A-F Brng
1—136″ face x 54″ dia; SS covering

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16″ Dia.: 2—46″ face w/Accessories
18″ Dia.: 1—90″ face w/A-F Brng
24″ Dia.: 38—46″ face; Chrome plated
28″ Dia.:
3—70″ face w/gears & bearings
3—73″ face w/gears & bearings
3—76″ face w/gears & bearings
3—77″ face w/gears & bearings
2—84″ face
2—84″ face w/accessories
2—160″ face w/rope carriers
36″ Dia.:
1—42″ face
2—44″ face
2—46″ face
4—70″ face w/gears & bearings
11—72″ face w/gears & bearings
1—74″ face Lukenweid w/A-F Brng
1—74″ face w/gears & bearings
3—75″ face w/gears & bearings
9—76″ face w/gears & bearings
1—77″ face w/gears & bearings
1—78″ face w/gears & bearings
2—80″ face
5—84″ face
18—90″ face; complete section
1—138″ face
10—160″ face
42″ Dia.:
24—102″ Face; Complete Section
1—106″ face
1—110″ face
1—120″ face
1—160″ face
48″ Dia.:
58—46″ face; chrome plated
1—52″ face w/gears & bearings
1—82″ face w/gears & bearings
5—90″ face w/gears & bearings
4—94″ face
20—96″ face; complete section
10—100″ face w/bearings
25—110″ face w/frames & bearings
12—123″ face w/gears, frames & bearings
1—128″ face
14—160″ face

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3—62″ Textile Machinery Co.; complete

FILTERS—STEEL VATS
1—6′ face x 3′ dia Dorr-Oliver
1—10′ face x 8′ dia Dorr-Oliver continuous

FLAT SCREENS
1—Bird Jonsson w/motor
2—12 Plate IMPCO w/Dunbar Drives

FOUDRINIER WET END
1—106″ Valley complete from head box through 22″ dia. suction couch

INLETS & HEADBOXES
1—112″ Shartle S.S. w/hydronamic adjustable inlet
1—156″ New Valley w/36″ headbox; monel lined

JORDANS
1—Jones Majestic
2—Appleton #1 w/A-F Brng
2—N & W Pony w 75 h.p. motors

LABORATORY EQUIPMENT
1—24″ Waldron Coater & Embosser
1—25 lb. Valley Beater

MOTORS—3 PH. 60 CYCLE
1—100 hp GE; 440 v; 695 rpm
2—100 hp GE; 440 v; 430 rpm
1—350 hp GE; 2200 v; 720 rpm: Synch

PUMPS
1—10 x 20 Shartle Triplex
Various open & inclosed impellor centrifugal

REELS
1—86″ Downingtown two bowl
1—94″ Downingtown two bowl; 60″ dia rolls
1—100″ Kohler automatic to arm unwind reel; 60″ dia rolls; new condition
1—150″ B & S pope type w/Reliance drive

REFINERS
2—#1 Claflin; A-F Brng
1—24″ Downingtown Weiner; new
1—F24 Bauer w/50 hp motor

ROLL GRINDERS—COMPLETE W/MOTORS
1—208″ x 32″ Farrel w/crowning device

ROTARY SCREENS—BIRD
10—#3A, Model 100 w/SS or copper vats

SAVEALL
1—Bird 6A

SHEETERS—DOUBLE KNIFE
1—64″ Dillon
1—80″ B-C heavy duty board model
1—87″ Hamblet w/backstand & layboy
1—157″ Masson-Scott; like new

SHEETERS—SINGLE KNIFE
1—36″ Beck w/layboy & Elec. Eye
1—60″ Hamblet w/backstand
1—65″ Kidder w/elec. eye and layboy
1—67″ Hamblet
1—71″ Hamblet
1—78″ Hamblet w/layboy; A-F Brngs.
1—82″ Hamblet w/layboy & backstand
1—105″ Hamblet w/backstand & motor
1—110″ Hamblet w/layboy
1—124″ Cameron quick change slitter assembly

SLITTERS & WINDERS
3—12″ Schultz Types AS & LDX
1—42″ Essex duplex; 30″ dia rewind
3—42″ Cameron Model 6; 24″ dia rewind
1—42″ Cameron Model 40-1A; 22″ dia rewind
2—48″ Langston duplex; 24″ dia rewind
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1—60″ Langston; shear cut; 30″ dia rewind
1—60″ Kidder Model SH; 40″ rewind
1—62″ Cameron Model 9-5; 24″ dia rewind
2—62″ Cameron Model 6; 24″ dia rewind
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American Potash & Chem. Corp. ..... —
American Pulp & Paper Mill Supts. Assn. ..... —
American Steel & Wire Co. .. —
Anglo Paper Products Ltd. 18
Annin Company ..... —
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Apmew, Inc. ..... —
Appleton Machine Co. ..... —
Appleton Wire Works 14
Appleton Wood Products Co. .. —
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Bahr Brothers Mfg. Co. 58
Bailey Meter Co. ..... —
Bauer Bros. Co. .....Back Cover
Becco Chem. Div., Food Machy. Corp. ..... —
Beloit Iron Works Co. ..... —
Bird Machine Co. 25
Bixby, R. W., Inc. 60
Black-Clawson Co. 57
Bolton & Sons ..... —
Bowsher Co., N. P. ..... —
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Broughton, A. E. & Co. ..... —
Brown Company 50
Buckeye Cellulose Corp. ..... —
Buffalo Forge Co. 37
Buffalo Pumps, Inc. ..... —
Butterworth, H. W., & Sons Co. ..... —

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Cameron Machine Co. 3
Carthage Machine Co. ..... —
Central National Corp. .Front Cover
Central Soya Co. ..... —
Chain Belt Co. ..... —
Ciba Company ..... —
Cities Service Oil Co. ..... —
Clark-Aiken Company ..... —
Classified Advertising 60
Clearing House 60
Cleveland Crane & Engrg. Co. —
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Columbia-Southern Chem. Corp. Sub. of Pittsburgh Plate Glass Co. ..... —
Combustion Engrg. Co. ..... —
Conveyair Sales Ltd. ..... —
Corn Products Sales Co. ..... —
Crane Co. 51
Curtiss-Wright Corp. ..... —

Davis, Frank H., Co., Inc. .... —
DeZurik Corporation ..... —
Dewey & Almy Chem. Co. ..8 & 9
Diamond Alkali Co. ..... —
Dierks Paper Co. ..... —
Dilts Machine Works 57
Dodge Mfg. Co. ..... —
Dorr-Oliver ..... —
Dow Chemical Co. ..... —
Dowell, Inc. .....Cover 2
Draper Bros. Co. ..... —
Dryden Paper Co., Ltd. 18
du Pont, E. I., de Nemours & Co., Dyestuffs Dept. ..... —
du Pont, E. I., de Nemours & Co., Electrochemical Dept. .. —
du Pont, E. I., de Nemours & Co., Grasselli Dept. ..... —
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Elixman Paper Core Co. ..... —
Export Supplement ..... —
Elwell-Parker Elec. Co. ..... —
English China Clays Sales Corp. ..... —
Executone Inc. 41
Extremultus, Inc. 52

FabriValve Company ..... —
Fairbanks Morse & Co. 53
Falk Corporation ..... —
Fibrecast Company ..... —
Fife Manufacturing Co. 58
Fisher Governor Co. ..... —
Fitchburg Screen Plate Co. ... —
Foxboro Co. ..... —
Frederick Iron & Steel Co. .... —

Garlock Packing Co. 40
Gaspesia Sulphite Co. Ltd. ... —
Gates Rubber Company 13
Geigy Chemicals Corp., Geigy Dyestuffs Div. ..... —
General Dyestuffs Co. ..... —
General Electric Co. .....38 & 39
General Tire & Rubber Co. .... —
Gibbs-Brower Co. ..... —
Gilbert & Nash Co. ..... —
Glidden Company ..... —
Goodyear International Corp. ... —
Goodyear Tire & Rubber Co. .. —
Gottesman & Co. .....Front Cover
Goulds Pumps ..... —
Grace, W. R., & Co., Dewey & Almy Chem. Div. ..... —
Graton & Knight Co. ..... —
Graver Tank & Mfg. Co. ..... —
Grinnell Co., The ..... —
Gruendler Crusher & Pulv. Co. 59
Gulf Oil Corporation ..... —
Gurley W. & L. E. ..... —

Hamblet Machine Co. ..... —
Harris-Seybold Co. ..... —
Heimbach, Thomas J. ..... —
Hendrick Mfg. Co. ..... —
Hercules Powder Co. ..... —
Hills-McCanna Co. ..... —
Hooker Chemical Corp. ..... —
Houghton & Company ..... —
Huber, J. M. Corp. 7
Hudson Sharp Machine Co. .. —
Hungerford & Terry, Inc. .... —
Hunt, Rodney ..... —
Huyck, F. C. & Sons ..... —

Improved Machinery, Inc. ..... —
Ingersoll-Rand Co. ..... —

Jagenberg Werke 4
Jenkins Brothers ..... —
Johns-Manville Corp. ..... —
Johnson Corp., The 59
Johnson, Alvin H., Co. ..... —
Jones, E. D., Corp. 54
Jones & Laughlin Steel Corp. —

Kalamazoo Tank & Silo Co. ... —
Kidder Press Co. ..... —
Kinney Engineers Inc. ..... —
Knox Woolen Co. ..... —

Langston, Samuel M., Co. .... —
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Lockwood Greene Engineers .... —
Lodding Engineering Co. ..... —
Lukon, Inc. ..... —
Lunkenheimer Co. ..... —
Lyddon & Co. ..... —

Magnus Metal Corp. 59
Main, Charles T., Inc. 56
Manchester Machine Co. ..... —
Marathon—A division of American Can ..... —
Mead Pulp Sales, Inc. ..... —
Merrick Scale Co. ..... —
Metalsalts Corp. ..... —
Minneapolis-Honeywell 12
Mixing Equipment Co. ..... —
Monsanto Chemical Co. 16
Moore & White Co. ..... —
Morden Machines Co. ..... —
Mt. Vernon Mills Inc. ..... —
Murray, D. J., Mfg. Co. ..... —

Nash Engineering Co. ..... —
National Aluminate Corp. ..... —
National Lead Co., Magnus Metal Div. 59
National Starch Products, Inc. —
National Tube Div., U. S. Steel Inc. ..... —
New Jersey Zinc Co. ..... —
Nichols Eng. & Research Corp. —
Noble & Wood Mch. Co. .... —
Nopco Chemical Co. ..... —
Norgren, C. A., Co. ..... —
Northeastern Paper Sales 18
Norton Co. ..... —

Oakite Products Inc. ..... —
Ohio Injector Co. ..... —
Orchard Paper Co. ..... —
Osborne Paper Mill Equip. Corp. —

Paper Conv. Mch. Co. ..... —
Parsons & Whittemore ..... —
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Personnel Service Associates .. —
Permutit Co., Div. of Pfaudler Permutit Inc. ..... —
Pioneer Paper Stock Co. ..... —
Potdevin Machine Co. ..... —
Powell Valves ..... —
Price & Pierce, Ltd. 58
Pusey & Jones Corp. 35

Railway Supply & Mfg. Co. .. —
Raymond, Chas. P. Service, Inc. ..... —
Record Fdy. & Mch. Co. ..... —
Red Ray Mfg. Co. ..... —
Remington Arms Co., Inc. ... —
Rhoads, J. E., Sons Co. ..... —
Rice Barton Corp. ..... —
Riedel, Gus & Son 56
Riegel Paper Corp. 15
Rohm & Haas Co. ..... —
Ronningen-Petter Co. ..... —
Roosevelt Paper Co. ..... —
Roots-Connersville Blower Div., Dresser Industries ..... —
Ross, J. L., Co. ..... —
Ross, J. O., Engrg. Co. ..... —
Ross Midwest Fulton Corp. ... —
Ross Paper Machinery Co. .61 & 63
Ruderman Machinery Exchange .....62 & 63
Rust Engineering Co. ..... —
Rust Industrial Co. ..... —
Ryerson, Jos. T., & Son 20

Sandoz, Inc. ..... —
Sandy Hill Iron & Brass Works —
Scapa Dryers Inc. ..... —
Seaboard Air Line R. R. Co. .. —
Shartle Div., Black-Clawson Co. 57
Shawinigan Resins Corp. ..... —
Sheffeld Corp. ..... —
Shell Chemical Corp. ..... —
Shuler & Benninghofen ..... —
Shy, C. D., & Company ..... —
Signode Steel Strapping Co. .. 10
Sinclair Company ..... —
Sirrine, J. E., Co. 55
SKF Industries 6
Smidth, F. L., & Co. ..... —
Socony Mobil Oil Co. ..... —
Sonoco Products Co. ..... —
Southworth Machine Co. ..... —
Spraying Systems Co. ..... —
Sprout Waldron & Co. ..... —
Stadler Hurter & Co. 56
Staley Mfg. Company ..... —
Stanley Steel Strapping ..... —
Stebbins Engrg., Co. ..... —
Stephens-Adamson Mfg. Co. .. 17
Stein, Hall & Co. ..... —
Stone & Webster Engrg. Corp. —
Stowe-Woodward, Inc. ..... —
St. Regis Paper Co. ..... —
Sunday, George M., Assoc. 60
Swenson Evaporator Co. .... —

Taylor Instrument Co.'s ..... —
Taylor Stiles & Co. ..... —
Taylor-Wharton Company ..... —
TeJax Engrg. Corp. ..... —
Tennessee Coal & Iron Co. .... —
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Testing Machines ..... —
Texas Co. ..... —
Texas Gulf Sulphur Co. ..... —
Thermal Equipt. Grp. ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 58
Thurso Pulp & Paper Co. .... —
Titanium Pigment Corp. 36
Torrington Co. ..... —
Towmotor Corp. ..... —
Turner Halsey Co. ..... —

United Engrg. & Fdy. Co. .... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corp. 49
United States Steel Export .. —
United States Steel Supply Co. ..... —
U. S. Steel Corp. ..... —

Valley Iron Works ..... —
Vanderbilt R. T., Co. ..... —
Virginia Smelting Co. ..... —
Voith, J. M., G. m. b. h. ..... —

Waldron, John Corp. .....Cover 3
Waldorf Electronics Co. ..... —
Walworth Co. ..... —
Weber, H. G., Company ..... —
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FRANCE: John Ashcraft
67 Avenue des Champs Elysees, Paris, 8.

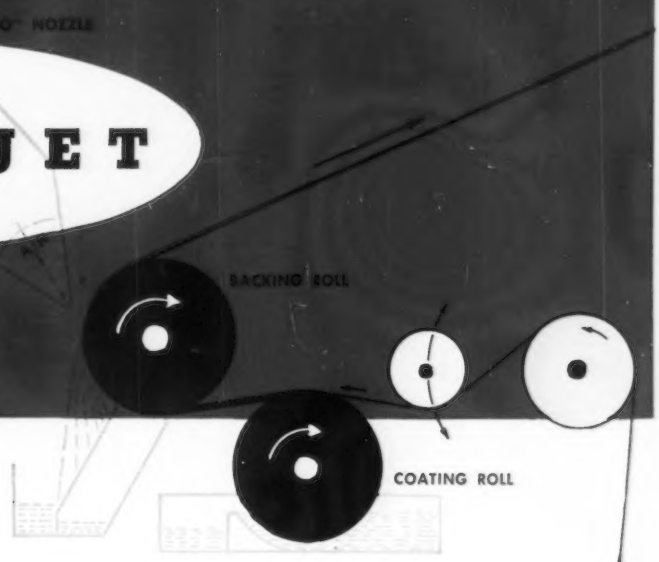
GERMANY: Herbert Morgenbesser
Kohlgarten 3, Hamburg-F.U. Phone: 59-82-03

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.

MICROJET

the COATER *where the*

metering is done by high velocity air

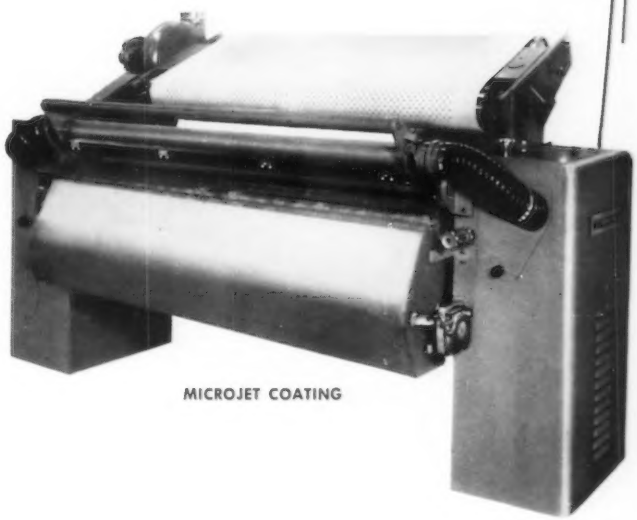


. . . and a clean, smooth, uniform job of metering it does, too! The accuracy is exceptionally high!

The quality of coat coming from the MICROJET Coater is exceptionally fine, being completely free of scratches or other surface imperfections. The economy is high in that maximum coverage per pound of coating is obtained.

The WALDRON MICROJET Coater can be installed actually on or immediately in series with the paper or board machine, if so desired. The finished sheet would require no further converting.

The MICROJET has been so successful wherever it has been installed—and the many units already in operation range up to 226 inches in width—that we suggest you discuss its advantages with one of our engineers in connection with that coater project you have in mind. It has much to offer.



MICROJET COATING

During their many years of service to the Web Processing Industry, Waldron Engineers have developed with many variations machines for coating, impregnating, embossing, laminating, saturating, printing, together with auxiliary mechanical equipment such as unwinds, rewinds, edge guides, tension controls, trimmers, slitters, sheeters.

Waldron Engineers have such a broad experience in this field of web processing that it might be very helpful to you to discuss any such project that will be coming up.

M-R

THE MIDLAND-ROSS GROUP OF COMPLEMENTING SERVICES

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Ross Engineering of Canada Limited, Montreal
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WHY PAY FREIGHT ON WATER?

The Bauer-Bale System of Preparing Pulp For Shipment Eliminates this "Extra" Cost

Halifax Power & Pulp Ltd., Sheet Harbour, N.S., had been shipping groundwood pulp at about 56% air dry solids. After installing the Bauer-Bale system, moisture content of shipments was greatly reduced so that easy-to-handle bales are now 96% air dry solids. In addition, several other advantages including better customer acceptance and wider market range are being realized. Here are results reported by this mill:

• Shipping costs greatly reduced. Previously when shipping a 500 lb. bale of wet lap pulp, moisture accounted for half the weight • Storage space savings. A ton of 56% a.d. groundwood baled pulp takes up about 110 cu. ft.; the same pulp when Bauer Bale processed takes up only 60 cu. ft. • Pulp can be shipped to more distant markets and can be stored in warm climates without deterioration • Reduced handling costs benefit both supplier and customers.

For more information on this modern method of preparing pulp for shipment, ask for Bulletin P-20-A.

The Bauer Bros. Co. • 1758 Sheridan Ave., Springfield, Ohio